RVEY OF THE ST. LOUIS PUBLIC SCHOOLS

CHARLES H. JUDD

EDUCATIONAL SURVEY SERIES

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Survey of the St. Louis Public Schools

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By CHARLES H. JUDD
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PART THREE—FINANCES

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CHAPTER XVII

PUBLIC SCHOOL COSTS IN ST. LOUIS

By H. O. Rugg

Definition of Various Terms Used in This Report on Finances

1. *Administration.* The term *administration* will be used in this report to denote all activities of the central offices. These include the following: 1—The superintendent's office, including assistant superintendents, and officers in charge of attendance and hygiene; 2—The various "business" offices (*e. g.*, in St. Louis)—the activities of the entire staffs connected with the Building Department, the Supplies Department, the Auditing Department, the Finance Department, and the Legal Department.

2. *Supervision and Instruction* will include the activities of all school supervisors whether of "subjects" or of "grades"; all principals and their clerks; all teachers of whatever grade.

3. *Operation* will apply to all activities of *operating the plant,* including, for St. Louis, the following: all work of janitors, assistant janitors, janitresses, and engineers, and any other operating employees; fuel; and janitors and engineers' supplies.

4. *Maintenance* will apply to all activities connected with repairs to buildings, replacement of equipment, etc., whether concerned with labor or materials.

5. *"Capital Outlays"* will apply to all activities connected with permanent improvements to school plant, building of new buildings, acquisition of school sites, etc. In general the terms used will follow the accepted definitions of the National Association of School Accounting Officers and the

United States Bureau of Education, in connection with the use of the "standard form" of the Bureau of Education for reporting school financial facts.

6. *Current Expenditures* is a term applied to all expenditures, exclusive of capital outlay, incurred in the running of the public schools during one year. It includes Administration, Supervision and Instruction, Operation and Maintenance.

7. Under *Business Purposes* will be included the activities of: 1—All offices in charge of Buildings, Supplies, Auditing and Finance; 2—All operation of Buildings; 3—All maintenance of Buildings.

8. Under *Educational Purposes* will be included activities of: 1—The Superintendent's offices, salaries and expenses; 2—Salaries and expenses of supervisors and principals; 3—Salaries of teachers; 4—Educational supplies; 5—Text-books; 6—All other "instructional" expense for schools.

9. *"Average"*: In this report all "average" expenditures are computed by the commonly used "simple average" (or arithmetic mean) obtained by adding up the total scores and dividing by the number of cities.

10. By *Major Executive Officers* are meant those officials in charge of one of the five departments under which St. Louis' school business is carried on, who report directly to their respective committees of the Board of Education and to no other officer.

11. *Cost Accounting* will include all activities of: 1—Distributing charges against buildings, departments, and "appropriations"; 2—The computation of current "unit costs"; 3—The preparation of cost data for St. Louis' activities in previous years (called "historical" cost studies); 4—The preparation of comparisons of costs in St. Louis and other cities (called "comparative" cost studies); 5—The interpretation and application of the cost computations to improving school practice.

The Financial Situation of the Board of Education

The Board of Education in St. Louis needs more money to run the public schools. A study of the financial situation reveals 10 outstanding facts in support of this definite statement: 1—among the cities of its class St. Louis is relatively a wealthy city; 2—it spends less per inhabitant and per $1000 of wealth for school purposes than all but two cities of its class; 3—it devotes a smaller proportion of its municipal revenue to school purposes than 14 other cities of its class; 4—it has had to retrench on its building program, thus crowding its buildings to the limit and causing the use of over 100 portable buildings with the assurance of having to use more in the future; 5—its classes are abnormally large; 6—its teachers' salary schedule is only average for the cities of its class, whereas its salary schedules for all other employees are unusually high; 7—for seven years it has raised for school purposes the full legal limit of 6 mills on every dollar of assessable property; 8—in spite of this, during the past 18 years it has spent more money than it has raised in 10 of the years; 9—if its revenue and expenditures for current expenditures (exclusive of outlay for building and permanent improvements) continue to increase at the rate at which they have during the past 18 years, the present rate of 6 mills (which is the upper limit of taxation for school purposes in St. Louis) will soon be insufficient to take care of the current expenditures alone; 10—its administration is relatively efficient and its possible economies are small, relative to the increased amount of money needed.

These facts state in brief the financial situation of the St. Louis Board of Education. For several years past, the administrative officers and the Board of Education have recognized the needs of the building situation and have considered ways and means for meeting them. The present report is an attempt to study thoroughly all phases of the financial and

business administration of the school system, to present a detailed picture of the present situation and to indicate possible ways and means of meeting the problems that now face the Board of Education.

We may anticipate the later detailed discussion by indicating that one of three courses may be taken by the Board in the present crisis:

1. It may retrench in its building program and its present distribution of monies for current purposes. To do this will be to hamper very seriously the carrying on of school work in the city. It will undoubtedly be agreed that, provided the money that is now raised is being well expended, St. Louis will not permit this to be done. This report will show that it is not possible to retrench sufficiently to meet the increased needs of the school pupils of St. Louis.

2. The city may take advantage of its constitutional powers and authorize the Board of Education to levy a tax for school purposes as high as 10 mills on the dollar of assessable property. The money thus raised could be used to finance all activities of the public schools, both new building, operation, and maintenance, for the next few years.

3. The city may vote a bond issue sufficient to take care of the immediate needs of the Board's building program for a term of, say five years. To do either (2) or (3) will require the expense of an educational campaign and a city election. If the second course were followed, and the city was asked to vote either 8 or 10 mills on the dollar, sufficient funds would be made available for the carrying on of the necessary building program and the maintenance of the current needs of the system. It would not imply an annual election as has been suggested, for sufficient funds would be obtained to cover the needs of several years. Such a procedure would not lay upon the city a bonded indebtedness, accumulating periodically as the school needs of the city accumulate. If the third course were followed, a bond issue of sufficient size might be voted to satisfy the needs of the next

few years. At the end of that time the process must be repeated. St. Louis has now no bonded indebtedness for schools. It will have a periodically increasing one if course (3) is followed.

The Legal Capacity of the Board of Education in Financing the Public Schools

The raising of school monies in St. Louis is a relatively simple and direct matter. The Board of Education has sole power to levy school taxes. There is no reviewing tax agency to whom the Board has to go for confirmation of its action, with the usual consequent reduction of a soundly prepared budget. It is possible, therefore, for St. Louis to operate its schools on a real budget system, within certain Constitutional and Statutory limits. These limits are defined by the Constitution of the State of Missouri and by the revised statutes, the city school district of St. Louis being independent of the other agencies of municipal government in the city. Article X, Section 11 of the Constitution provides that no city school district of over 100,000 population shall levy for school purposes more than 60 cents on a hundred dollars of assessable property; provided, however, that this rate may be increased to 100 cents if a majority of the voters, *who are taxpayers, voting* at the city election, vote to do so. Within these limits, the vote of *the qualified voters* may authorize the Board of Education to increase the levy for the purpose of erecting school houses. Within the Constitutional limits stated above, Sections 10796-10798 of the Revised Statutes of Missouri, prescribe the specific legal procedure for the authorization in the increase in levy and bond issue. The Charter granted the school district of St. Louis, is entirely subordinate to the above constitutional and statutory provisions. It prescribes minutely the organization of the system and the duties of the chief administrative officers, but leaves the larger questions of finance to the Constitution and the Statutes.

The Revenue of the Board of Education

We have shown above the legal capacity of the Board to finance schools in St. Louis. To what extent has the Board taken advantage of its legal powers? How much money has it raised for the schools in past years and what is the relation between the revenue obtained and the expenditures for schools?

It should be noted that during the past years the rate of taxation for school purposes has been increased in St. Louis

Table I.—Number Mills on the Dollar of Assessable Property Raised for Various Purposes in St. Louis, 1896-1915, Inclusive*

Year	Tax Levied for Schools	Total Municipal Tax Other Than School	State Tax	Total City Tax
1896	4.0	14.0	2.5	20.5
1897	4.0	14.0	2.5	20.5
1898	4.0	14.0	2.5	20.5
1899	4.0	14.0	2.5	20.5
1900	4.0	13.0	2.5	19.5
1901	4.0	13.0	2.5	19.5
1902	4.0	12.5	2.5	19.0
1903	5.0	13.0	2.5	19.5
1904	5.0	14.7	1.8	21.5
1905	5.5	14.7	1.7	21.9
1906	5.5	14.7	1.7	21.9
1907	5.5	13.8	1.7	21.0
1908	5.5	14.5	1.7	21.7
1909	6.0	14.5	1.7	22.2
1910	6.0	14.5	1.7	22.2
1911	6.0	14.5	1.7	22.2
1912	6.0	14.5	1.7	22.2
1913	6.0	14.3	1.9	22.2
1914	6.0	14.3	1.9	22.2
1915	6.0	15.6	1.9	23.5

* Data from Annual Reports of the City Comptroller, 1910-11 and 1914-15, except for year 1903, which differs from Report of Board of Education, 1908-09. Board of Education Report used.

four times. Table I shows the following facts: from 1896-1903, it was 4 mills; in 1904, 5 mills; 1905-1908, 5.5 mills; 1909 to date, 6 mills. In each year the Board has levied the full amount as stated. The table also shows that whereas the school tax has increased 50 per cent in 20 years other municipal taxes have increased by 11.43 per cent; again, that the school tax is a slightly larger per cent of the total city tax now than it was in 1896. We note, then, that due probably in part to placing the taxing power in the hands of the Board of Education, the city has increased slightly more

TABLE II.—INCREASES IN PROPERTY VALUATION AND SCHOOL REVENUE 1897-98 TO 1914-15, INCLUSIVE*

Year	Assessed Valuation of Property	No. of Mills Levied for all School Purposes	Total School Revenue¶
1897	$344,933,468	4	$1,804,099
1898	368,804,826	4	1,872,341
1899	374,510,773	4	1,933,603
1900	380,923,332	4	2,037,026
1901	394,795,700	4	2,155,606
1902	418,063,501	4	2,297,518
1903	444,393,173	5	2,864,701
1904	459,012,807	5.5	3,208,591
1905	469,046,650	5.5	3,292,524
1906	497,348,175	5.5	3,534,178
1907	510,378,583	5.5	3,565,694
1908	524,302,020	6	3,992,395
1909	538,830,211	6	4,206,510
1910	565,725,323	6	4,332,875
1911	573,888,710	6	4,451,860
1912	599,026,212	6	4,535,956
1913	600,255,908	6	4,760,821
1914	615,934,762	6	4,709,494
Average Yearly Increase	16,000,000	...	171,000

* Data from Annual Reports of St. Louis Board of Education.

¶ Years 1897-1900 and 1912-14, inclusive, only General Fund Receipts are given. All other years, all Receipts are shown.

rapidly its endowment of school purposes than it has that of other municipal activities. The city must now face the fact that although this is true it is not raising enough money to carry on adequately the work of the schools.

Table II shows the increase in the assessed valuation of property in St. Louis during the last 18 years together with the increase in total school revenue. School revenue comes from 4 principal sources: 1—local taxation (about 72 per cent); 2—the State school fund (about 7 per cent); 3—Merchants' and Manufacturers' taxes (about 10 per cent); 4—railroad taxes (about 5 per cent). In addition to these about 5 per cent comes from minor miscellaneous sources. St. Louis again is somewhat unusual among the cities of its class in that it derives only about three-fourths of its income

TABLE III.—PER CENT THAT EACH SOURCE OF REVENUE OF THE ST. LOUIS BOARD OF EDUCATION IS OF THE TOTAL REVENUE 1900-1915, INCLUSIVE*

Fiscal Years	Local Taxes	State School Fund	Merchants and Manufacturers Taxes	Railroad Taxes	All Other Sources
1900-01	70.98	7.88	7.75	4.54	8.85
1901-02	70.36	8.17	8.46	4.92	8.09
1902-03	70.17	8.40	8.88	4.95	7.60
1903-04	71.36	7.06	10.14	5.06	6.38
1904-05	72.75	7.17	10.69	5.20	4.18
1905-06	72.67	7.26	10.45	5.20	4.42
1906-07	70.80	6.90	10.23	5.16	6.91
1907-08	71.52	7.14	11.39	5.51	4.44
1908-09	72.70	7.10	10.90	5.52	3.78
1909-10	70.78	7.35	10.93	5.20	5.64
1910-11	71.38	8.08	10.97	5.21	4.36
1911-12	71.57	7.98	10.74	5.09	4.62
1912-13	72.18	7.18	10.45	5.19	5.00
1913-14	70.81	6.32	10.80	4.89	7.18
1914-15	72.55	6.48	9.92	4.97	6.07

*Data from 1914-15 Annual Report of St. Louis Board of Education.

from local taxation on real and personal property, special taxation contributing an unduly large amount. Furthermore, its contribution to the state tax is a smaller proportion of its entire city tax than it was 15 or 20 years ago. Table III indicates the per cent that each source of total school revenue was in each year from 1900-1915. It contributes to our discussion the fact that the sources of school revenue in St. Louis are very stable and that the Board can probably count on a regularly maintained increase in the way in which each source will continue to contribute to the total revenue. Table II shows moreover, a fairly steady increase in the property valuation, the average yearly increase during the past 18 years being about $16,000,000. In the same fashion, with slight exceptions the total school revenue has increased at a very steady rate, averaging for 17 years $170,000 a year or for the past ten years $209,000 a year.

Relation Between Revenue and Expenditures of the Board of Education

With the income increasing steadily over a course of years, and tax rate the maximum possible under the State Constitution, what has been the relation between income and expenditures during the past two decades?

Table IV shows this relation for the past 18 years by comparing total revenue with expenditures for current purposes, for outlay and for all school purposes. It shows the excess of total revenue over both current and all expenditures for particular years and the excess of total expenditures over total revenue for particular years. The table shows that the Board of Education has had a deficit in 10 years out of 18, that most of these deficits have been small, while three of them have exceeded $200,000, and that summarizing the situation for the 18 years, the Board has had to its credit a residual excess of revenue over total expenditures of $269,000. However, sight must not be lost of the fact that the Board has had to retrench in its extension of building facilities most

TABLE IV.—RELATION BETWEEN REVENUE AND EXPENDITURES 1897-98 TO 1914-15, INCLUSIVE*

Year	Total Revenue¶	Expenditures for:			Excess of Total Revenue over current expenditures	Excess of:	
		Current Purposes	Outlay	All Purposes		Total Revenue over total expenditures	Total Expenditures over total revenue
1897 ...	$1,804,099	$1,328,638	$ 145,461	$1,474,099	$ 475,461	$ 330,000	.....
1898 ...	1,872,341	1,470,146	490,304	1,960,450	402,195	.....	$ 88,109
1899 ...	1,933,603	1,534,024	452,179	1,986,202	399,579	.....	52,599
1900 ...	2,037,026	1,600,183	346,516	1,946,700	436,843	90,326	.....
1901 ...	2,155,606	1,676,957	486,455	2,163,413	478,655	.....	7,807
1902 ...	2,297,518	1,752,991	602,723	2,355,714	544,527	.....	68,196
1903 ...	2,864,701	2,031,388	831,975	2,863,364	833,313	1,337	.....
1904 ...	3,208,591	2,108,496	746,164	2,854,661	1,100,095	353,930	.....
1905 ...	3,292,524	2,157,148	1,258,821	3,415,969	1,135,748	.....	123,445
1906 ...	3,534,178	2,281,394	1,031,238	3,312,632	1,252,784	221,546	.....
1907 ...	3,565,694	2,622,378	1,167,226	3,789,604	943,316	.....	223,910
1908 ...	3,992,395	2,772,385	1,478,381	4,250,766	1,220,010	.....	268,371
1909 ...	4,206,510	2,912,524	1,197,336	4,109,861	1,293,986	96,649	.....
1910 ...	4,332,875	3,260,854	1,140,731	4,401,586	1,072,021	.....	68,711
1911 ...	4,451,860	3,433,592	830,377	4,263,970	1,018,268	87,890	.....
1912 ...	4,535,956	3,482,456	783,321	4,265,778	1,053,500	270,178	.....
1913 ...	4,760,821	4,068,864	735,092	4,803,956	691,957	.....	43,135
1914 ...	4,709,494	4,226,305	721,324	4,947,630	583,189	.....	238,136
Av. Year. Inc. 1897-1914,	171,000	170,000	.....	204,000	Totals	1,451,856	1,182,419
Av. Year. Inc. 1904-1914,	150,000	210,000	.....	209,000	Total Excess of Revenue Over Expenditures ...	269,437	

* Data from Annual Reports of Board of Education, St. Louis.

¶ Years 1897-1900 and 1912-1914 inclusive, only General Fund Receipts are given. All other years, all receipts are shown.

DIAGRAM I

REVENUE AND EXPENDITURES, 1897-98 TO 1914-15, INCLUSIVE

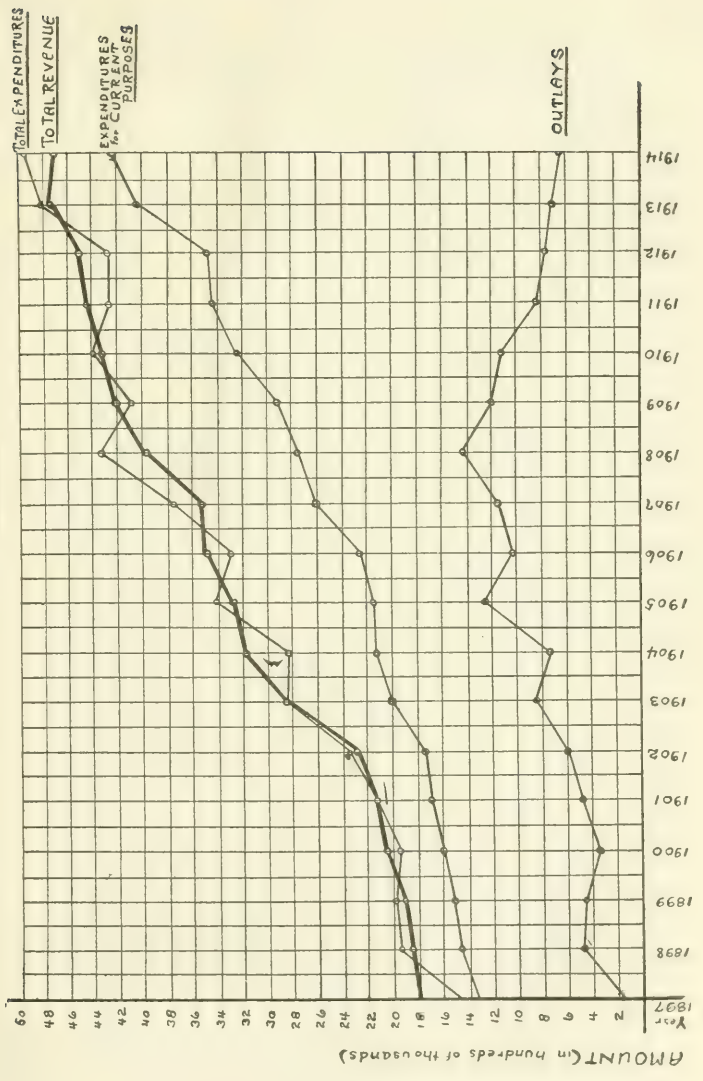
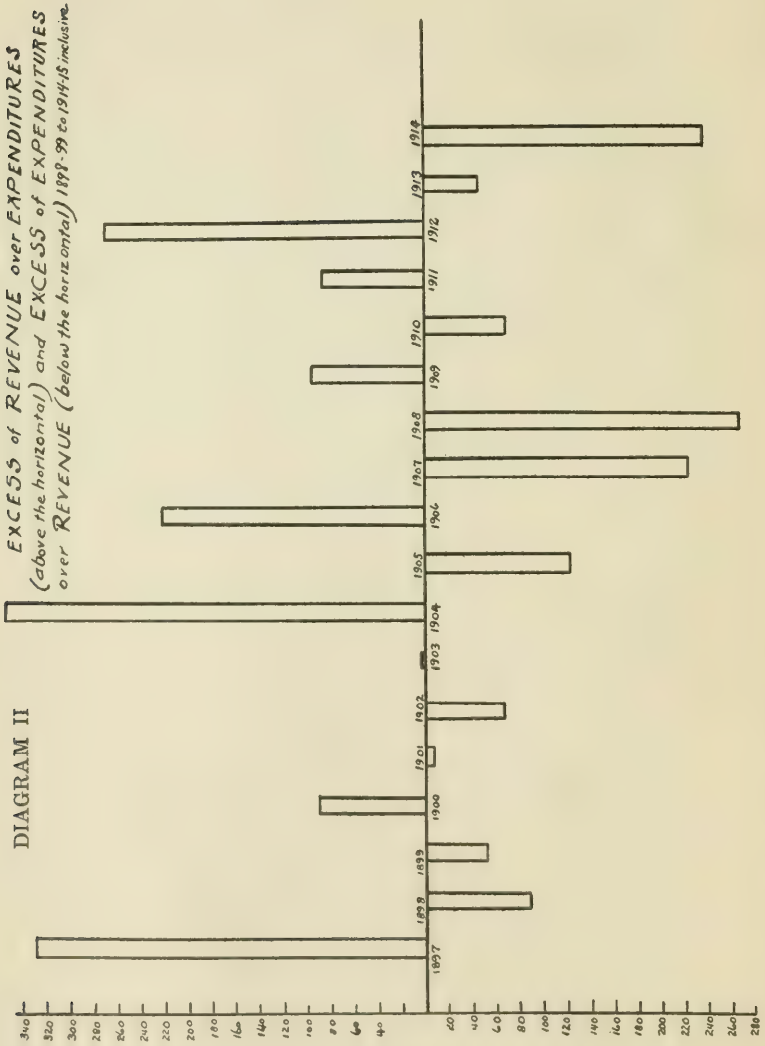


DIAGRAM II


EXCESS of REVENUE over EXPENDITURES
(above the horizontal) and EXCESS of EXPENDITURES
over REVENUE (below the horizontal) 1898-99 to 1914-15 inclusive
1897
1898
1899
1900
1901
1902
1903
1904
1905
1906
1907
1908
1909
1910
1911
1912
1913
1914
340
320
300
280
260
240
220
200
180
160
140
120
100
80
60
40
20
40
60
80
100
120
140
160
180
200
220
240
260

decidedly in the past few years. To have extended its building program as school housing conditions in St. Louis really demanded would have forced the Board of Education to borrow money. The situation is again unique, however, in that St. Louis has no bonded indebtedness for schools and at least during the last few years has never been forced to borrow money on short term notes. Table V shows the cash balance on hand at the close of the fiscal year from 1905-06 to 1912-13, inclusive. In no year have these been contributed to by loans.

TABLE V.—CASH BALANCE AT THE CLOSE OF THE FISCAL YEAR 1905-1906 TO 1912-1913*

Year	Cash Balance
1905—06	$555,204.62
1906—07	431,759.98
1907—08	653,305.74
1908—09	429,395.89
1909—10	171,024.93
1910—11	267,673.42
1911—12	198,962.10
1912—13	386,852.25

* Data compiled from Annual Reports of the Board of Education, 1905-06 to 1912-13.

It is noticeable, however, that since 1908-09 the cash balances have been materially smaller than prior to that time. The low point at 1909-10 is contributed to largely by the unusually large expenditures for buildings in that year. Since that year the building program has been cut down but the balances have remained low.

Diagram I and Table IV call attention to some rather striking increases in the current expenditure curve for certain years, 1902-03, 1906-07, 1909-10, and especially 1912-13. Analysis of the increase in teachers' salaries during the past ten years shows that these increases in total current expenditures are contributed to most largely by increases in salary schedules for the instructional staff and by unusually large annual expenditures for maintenance and equipment.

Income, then, has increased steadily over a course of years; the Board of Education has been levying the maximum rates permitted under the Constitution; officers of the Board have studied carefully ways and means of reducing expenditures; the building program has been materially reduced in scope, so much so that an extension of it must be taken up very shortly. Nevertheless, the Board has continued to spend more for school purposes than it has raised for school purposes in 6 out of the past 10 years. Clearly then, the situation needs to be studied more in detail. We should be prepared to answer such questions as these:

1. To what relative degree is St. Louis *able* to support schools when compared with cities of its class? This raises the problems of selecting cities whose school financial situation is comparable to that of St. Louis, and of establishing the validity of the statistics to be used in the report.

2. To what relative degree *is it* supporting schools? In general this may be shown by the amount of money spent for all school purposes per inhabitant and the amount spent in terms of the wealth of the city.

3. To what extent is it supporting schools as compared with the way in which it supports other city activities?

4. How does the Board of Education spend its money, dividing it between capital outlay and current expenditures?

5. To what extent does the Board support different kinds of *educational service?* First: how is it distributing its money between educational and business functions? Second: what relative emphasis does it lay on administrative, instructional, operation and maintenance functions? Third: to which of the more specific activities of school work does it tend to devote its attention,—various particular administrative offices; supervision; principalships; teaching; janitorial service; supplies; fuel; text books; upkeep of the plant?

6. To what extent does the city support different kinds of *schools,*—elementary, secondary, normal training, evening, various special schools? Particular emphasis on special kinds

of service or schools will call for a discussion of salary schedules of teachers and other employees; sizes of classes, etc.

The above questions will be definitely answered in the remaining pages of Part I of this report. Following the summary of this cost situation in the St. Louis schools, a detailed analysis of the organization and administration of the various business departments will be taken up with a view to determining the relative efficiency and economy of the various phases of school procedure in the business end of the system. The report as a whole will contribute to the definite establishment of the 10 facts set forth on page 1.

The Capacity of the City to Support Schools

I.—Selection of a List of Comparable Cities

The capacity of a city to support schools may be stated in terms of its wealth per inhabitant or per school census child, or may be measured relatively by comparison of its capacity with that of other cities in its class. Such a comparison together with other comparisons of unit expenditures for school purposes calls for the selection of a group of cities whose school financial situation is comparable to that of St. Louis. Cities to be used for comparative purposes could best be selected on the basis of at least *4* criteria: 1—they should be of roughly the same population; 2—they should have somewhat the same geographical location in the country; 3—they should have approximately the same wealth per inhabitant or per school census child; 4—they should have roughly the same types of population from the racial and occupational standpoints. Moreover, since the list is going to be used for purposes of "ranking" the cities in serial order, it should be reasonably long, say generally not less than 15 to 20 cities. We may say at once, therefore, that for St. Louis we are forced to take the larger cities of the country, regardless of the way in which they satisfy the other criteria. Our only question arises in connection with the three very largest

cities, New York, Chicago, and Philadelphia, which from the standpoint of population are clearly out of St. Louis' class. It is reasonable to believe that certain administrative phases of school work in these cities might not be comparable to those of St. Louis and the other smaller cities. As to other phases it is believed that they are comparable. It is interesting to find, moreover, that in unit wealth New York and Chicago approach more closely to St. Louis than any others of the 22 largest cities of the group. In this report the policy will be adopted of including these three cities and of comparing St. Louis with all the other 21 cities above 300,000 in population.

Coming back to the question of stating the capacity of the city to support schools, it will be agreed that the unit of wealth per school census child would express accurately the city's capacity in terms of the amount of education it ought to be ready to provide. However, the attempt to compute per capita wealth on any basis is found to reveal two difficulties: 1—it is not known that the methods of assessing property in the different cities, actually result in exactly comparable statements of per capita wealth, and 2—the records of the number of children of school census age are so unreliable as to be of little use in computing unit wealth or unit costs. At best the latter are little better than rough estimates and for that reason will not be used in this report. The first difficulty,—that of getting comparable statements of real wealth in different cities is a very real one. This is illustrated by the fact that in St. Louis the comptroller states that the rate of assessment of property is 70 per cent; two other officials when asked concerning the rate, said it was 65 per cent and 66⅔ per cent respectively.

The best statistics that can be obtained on such questions are those published by the United States Bureau of the Census. These statistics are secured personally by specialists of the Bureau who go to the books of the various systems and compile the data themselves. It is unfortunate that the Bureau has not compiled complete data on school activities

since 1912, and data on but a few points concerning schools in 1913. It will undoubtedly be agreed that the statistics are closely accurate and that for the purpose of ranking our cities, they may be used in this report. They will be used for those data that are not available for 1915 from other sources.

Granting the fact that property is not assessed at the same rates in different cities we shall accept the rates as stated by the Bureau's specialist as the most comparable list we can secure. We shall next compute the "true value" of property in each city from the stated assessed value and the accompanying "rate" of assessment. Those values are used in Table VI and Diagram III to give the wealth per inhabitant in the 22 largest cities in 1913. According to these data St. Louis has a relatively large capacity for supporting schools, ranking in the top third of the list. It should be noted that St. Louis and 5 other cities, Minneapolis, New York, St. Louis, Chicago, Washington, and Seattle, occupying the 4th to the 9th positions inclusively, show practically the same capacity for supporting schools.

II.—The Validity of Statistics of the United States Bureau of Education

To determine the efficiency of the cost of public education in St. Louis, the study will necessarily be a comparative one, checking the expenditures of St. Louis against those of the 21 other cities in its class. It is recognized that we have almost no accepted standards or "optimum" unit of costs for various kinds of educational service in this country. The making of standards in this field is just beginning. In lieu of definite standards, a common method of studying school procedure has been to determine prevalent practice and set up the average practice as a sort of working "ideal" against which to check the practices of particular cities. Thus it has been common to "rank" cities in order of expenditures and discuss the practice of individual cities with respect to their position in the group. That will be done in this report

but it should be stated that "prevalent" practice will not be recognized as necessarily "standard" practice, but that the preparation and discussion of "rank" cost tables will be followed up wherever possible with detailed examination of the efficiency with which the school system carries on particular activities. Undoubtedly, it will be admitted that the efficient

TABLE VI.—WEALTH PER INHABITANT IN ST. LOUIS AND TWENTY-ONE OTHER CITIES. 1913*

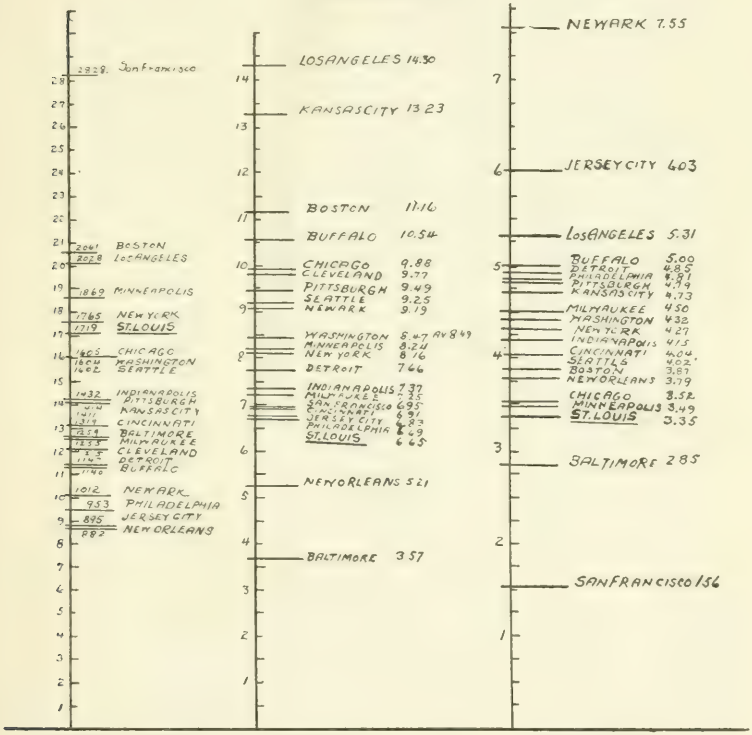
City	Wealth	Rank in Wealth
San Francisco	$2,828.58	1
Boston	2,061.84	2
Los Angeles	2,028.30	3
Minneapolis	1,869.13	4
New York	1,765.28	5
St. Louis	1,719.78	6
Chicago	1,604.85	7
Washington	1,604.20	8
Seattle	1,602.76	9
Indianapolis	1,432.64	10
Pittsburgh	1,414.62	11
Kansas City	1,411.58	12
Cincinnati	1,319.68	13
Baltimore	1,259.72	14
Milwaukee	1,255.19	15
Cleveland	1,215.40	16
Detroit	1,147.75	17
Buffalo	1,140.26	18
Newark	1,012.28	19
Philadelphia	953.65	20
Jersey City	895.50	21
New Orleans	882.37	22

* Data from Bulletin 126, "Financial Statistics of Cities," 1913, U. S. Bureau of Census.

The real value of property assessed has been estimated from the assessed value and the stated rates of assessment. In these cities property other than real or personal, the percentage rate adopted is the average of the rates for real and personal property.

carrying on of an activity in a certain city at a "lowest" cost provides a standard against which other cities ought to check. In the same way the city setting the highest cost, in terms of the degree to which it contributes most to the effi-

DIAGRAM III



ciency of school work, may be setting the "standard." There are, however, certain educational activities,—supervision, cost of principalships, administration, etc.,—for which we have no adequate tests and for the cost of which we have no

definite standards. For these activities we shall have recourse to ranking our cities and comparing St. Louis' procedure with that of the group.

Prior to 1913, the agents of the United States Bureau of Census visited the cities of above 30,000 inhabitants and personally compiled and classified financial data on schools. This was done most thoroughly, the classification being extended to specific types of administrative expense, and particular types of educational service. It is believed that these figures are relatively correct and may be assumed to be "true" costs. Since 1911-12 the United States Bureau of Education has collected detailed statistics on school finance from the city systems by means of a "standard form." This standard form has now been adopted by several hundred cities in the country and there has been great improvement in the uniformity and accuracy with which financial statistics are now reported. Without doubt the statistics of the United States Bureau of Education were of greater validity in 1915 than in 1912. Since 1912 no other agency has collected complete statistics. We need, therefore, to determine the validity of the statistics of the Bureau of Education if we wish to use them in this report.

Comparative statistics on other cities are desired for the purpose of computing costs per pupil in average daily attendance (this being regarded as the most adequate single measure of service rendered), ranking these in order of size and judging the practice of St. Louis by its *general* position in the group. We are interested primarily in determining whether it is in the top third or fourth, bottom third or fourth, etc., rather than whether it occupies a specific position in the list. Since two agencies, the Bureau of Census and the Bureau of Education, collected complete data on school finance in 1912 we can compute costs per pupil for various specific activities according to both sets of records, rank our cities in accordance with both sets of costs, and compare the ranks of various cities, St. Louis especially.

Since the statistics of the Bureau of Census were gathered personally by specialists we shall assume they are correct and check those of the Bureau of Education against them.

Table VII presents the per pupil cost for salaries and expenses of supervisors, principals, salaries of teachers, repairs, text-books, salaries of janitors, obtained from the two sources. With few exceptions the tables show a very satisfactory agreement in position. The costs for supervision and principalships are the ones for which less agreement would be expected than for any other activities. For supervisors the great differences in the case of Philadelphia and New Orleans are due to gross mistakes in classification, the expenditures for supervision and principalships having been exactly reversed. The difference for Pittsburgh is believed to be due to error in printing or transcription. Examination of the other comparisons reveals very little difference in the position of the cities. That is, the conclusions that we form from one set of records will not be unlike those formed from the other set of records. Especially is this true in the case of the one city in which we are interested, St. Louis. We may summarize its position in all the tables as follows:

	Supervisors	Principals	Teachers	Repairs	Janitors	Textbooks
Bureau of Census....	3	7	11	8	4	8
Bureau of Education.	4	6	9	6	3	8

The largest displacement in the ranking for St. Louis is two places. As a result of the tabulation and ranking it is believed that the interpretations made on the financial situation in St. Louis from cost tables computed from the Annual Report of the United States Bureau of Education, 1915 will be valid. Especially, is this true since 1912 was the first year in which the Bureau collected statistics in the standard form and much improvement has come about since in the completeness and accuracy with which city systems report their school facts. The space of this report will not permit a more detailed discussion of the position of individual cities in these tables.

TABLE VIIa.—COMPARISON OF EXPENDITURES PER PUPIL IN AVERAGE DAILY ATTENDANCE FOR VARIOUS SPECIFIC KINDS OF EDUCATIONAL SERVICE, COMPUTED FROM THE RECORDS OF U. S. BUREAU OF CENSUS (Financial Statistics of Cities) AND U. S. BUREAU OF EDUCATION (Annual Report) FOR THE YEAR 1912

City	Salaries of Teachers				Repairs			
	Expenditure Per Pupil		Rank in Expenditure		Expenditure Per Pupil		Rank in Expenditure	
	Bureau of Census	Bureau of Education	Bureau of Census	Bureau of Education	Bureau of Census	Bureau of Education	Bureau of Census	Bureau of Education
Baltimore	$22.43	$21.76	15	16	$1.94	$2.24	12	9
Boston	32.13	29.18	5	7	2.54	2.65	7	5
Cleveland	23.50	28.57	14	10	1.22	1.39	16	14
Detroit	28.38	28.91	9	8	1.11	1.08	17	16
Jersey City . . .	25.24	23.96	12	13	1.36	1.23	13	15
Kansas City . .	26.49	25.43	10	12	3.26	2.81	2	3
Los Angeles . .	33.77	41.14	3	1	4.52	4.38	1	1
Milwaukee . . .	29.91	31.41	8	4	2.86	3.71	4	4
Minneapolis . .	31.30	31.33	7	5	3.14	3.36	3	2
Newark	20.17	28.32	17	11	2.11	2.08	9	10
New Orleans .	22.17	22.90	16	14	1.33	1.05	14	17
Philadelphia .	24.07	22.80	13	15	1.26	2.07	15	11
New York	36.15	30.66	1	6	2.03	1.97	11	13
Pittsburgh . . .	31.59	21.03	6	17	2.53	2.00	6	12
San Francisco	32.63	32.44	4	3	2.78	2.57	5	7
Seattle	34.32	39.58	2	2	2.04	2.32	10	8
St. Louis	26.30	28.66	11	9	2.44	2.64	8	6

TABLE VIIb.—COMPARISON OF EXPENDITURES PER PUPIL IN AVERAGE DAILY ATTENDANCE FOR VARIOUS SPECIFIC KINDS OF EDUCATIONAL SERVICE, COMPUTED FROM THE RECORDS OF U. S. BUREAU OF CENSUS (Financial Statistics of Cities) AND U. S. BUREAU OF EDUCATION (Annual Report) FOR THE YEAR 1912

City	Janitors				Text Books			
	Expenditure Per Pupil		Rank in Expenditure		Expenditure Per Pupil		Rank in Expenditure	
	Bureau of Census	Bureau of Education	Bureau of Census	Bureau of Education	Bureau of Census	Bureau of Education	Bureau of Census	Bureau of Education
Baltimore	2.33	2.29	13	16	$1.00	$1.03	3	3
Boston	2.85	2.55	7–8	9–10	0.83	1.00	4	4
Cleveland	2.97	3.28	6	4	0.01	0.02	14	14
Detroit	3.63	3.68	2	1	0.40	0.31	9	9
Jersey City . . .	2.45	2.45	10	12	0.68	0.67	5	5
Kansas City . .	3.04	2.57	5	8	0.04	0.04	13	13
Los Angeles . .	2.26	2.40	15	13				
Milwaukee . . .	2.41	2.38	11	14	0.09	0.09	11	11
Minneapolis . .	2.85	2.89	7–8	5	0.57	0.57	7	6
Newark	2.04	2.79	16	7				
New Orleans .	1.43	1.51	17	17	0.05	0.05	12	12
New York	2.37	2.49	12	11				
Philadelphia .	2.58	2.55	9	9–10	1.05	1.63	2	1
Pittsburgh . . .	4.57	2.80	1	6	0.66	0.51	6	7
San Francisco	2.30	2.30	14	15	0.12	0.19	10	10
Seattle	3.46	3.60	3	2	1.14	1.33	1	2
St. Louis	3.07	3.32	4	3	0.42	0.41	8	8

Total costs and average daily attendance have both been taken from the corresponding set of records.

TABLE VIIc.—COMPARISON OF EXPENDITURES PER PUPIL IN AVERAGE DAILY ATTENDANCE FOR VARIOUS SPECIFIC KINDS OF EDUCATIONAL SERVICE, COMPUTED FROM THE RECORDS OF U. S. BUREAU OF CENSUS (Financial Statistics of Cities) AND U. S. BUREAU OF EDUCATION (Annual Report) FOR THE YEAR 1912

City	Salaries of Supervisors				Salaries of Principals			
	Expenditure Per Pupil		Rank in Expenditure		Expenditure Per Pupil		Rank in Expenditure	
	Bureau of Census	Bureau of Education	Bureau of Census	Bureau of Education	Bureau of Census	Bureau of Education	Bureau of Census	Bureau of Education
Baltimore	$0.20	$0.20	13	14	$1.05	$1.01	15	11
Boston	0.53	0.48	6	9	3.10	2.80	11	10
Detroit	0.57	0.66	5	5–6	3.45	3.50	6	5
Jersey City	0.41	0.41	8–9–10	10	3.23	3.30	8–9	8
Los Angeles					4.35	0.15	2	14
Kansas City	0.30	0.30	12	12–13	4.14	4.01	3	2
Milwaukee	0.45	0.51	7	8	3.23	3.51	8–9	4
Minneapolis	0.88	0.88	2	3	3.15	3.11	10	9
Newark	0.64	0.66	4	5–6	2.47	3.38	14	7
New Orleans	0.07	2.62	15	1	2.52	0.67	13	13
New York	0.16	0.30	14	12-13	5.75	3.86	1	3
Philadelphia	0.34	2.18	11	2	2.53	0.79	12	12
Pittsburgh	3.53	0.14	1	15				
San Francisco	0.41	0.36	8–9–10	11	4.02	4.38	4	1
Seattle	0.41	0.64	8–9–10	7	3.97	0.14	5	15
St. Louis	0.74	0.80	3	4	3.24	3.49	7	6

The Relative Degree to Which St. Louis Supports Schools

I.—Expenditure for All School Purposes

St. Louis spends less money on its public day schools than all but two cities in its class. Tables VIII and IXA and IXB and Diagram III show this to be true whether measured *absolutely* by the expenditures per inhabitant for

Table VIII.—Expenditures for All School Purposes Per Inhabitant. Twenty-two Cities. 1915*

City	Population**	Expenditures	Amount Spent Per Inhabitant	Rank
1. Los Angeles ...	475,367	$ 6,796,886	$14.30	1
2. Kansas City ...	289,879	3,835,010	13.23	2
3. Boston	745,139	8,327,256	11.16	3
4. Buffalo	461,335	4,865,484	10.54	4
5. Chicago	2,447,845	24,178,431	9.88	5
6. Cleveland	657,311	6,423,136	9.77	6
7. Pittsburgh.....	571,984	5,428,188	9.49	7
8. Seattle	330,834	3,059,333	9.25	8
9. Newark	399,000	3,668,267	9.19	9
10. Washington . ..	358,679	3,041,240	8.47	10
11. Minneapolis ...	353,460	2,913,361	8.24	11
12. New York	5,468,190	44,606,610	8.16	12
13. Detroit	554,717	4,250,174	7.66	13
14. Indianapolis ...	265,578	1,958,662	7.37	14
15. Milwaukee	428,062	3,103,981	7.25	15
16. San Francisco..	456,009	3,170,043	6.95	16
17. Cincinnati	406,706	2,811,688	6.91	17
18. Jersey City ...	300,133	2,050,298	6.83	18
19. Philadelphia . .	1,683,664	11,269,778	6.69	19
**20. St. Louis	**745,988**	**4,963,089**	**6.65**	**20**
21. New Orleans ..	366,484	1,903,968	5.21	21
22. Baltimore	584,605	2,087,387	3.57	22
Average	.....	.....	8.49	..

* Data from Annual Report U. S. Bureau of Education, 1915.
** Data estimated by the U. S. Bureau of Census for 1915.

all school purposes, or when measured *relatively* by the expenditures for all school purposes per $1000 of wealth. In both tables St. Louis ranks 20th in 22 cities. Table VI revealed St. Louis as 6th in per capita wealth. The figures on

TABLE IXa.—EXPENDITURE PER $1000 OF WEALTH FOR ALL CURRENT SCHOOL PURPOSES IN ST. LOUIS AND TWENTY-ONE OTHER CITIES. 1915**

City	Expenditure for All Current School Purposes		Rank in Expenditure Per $1000 of Property Assessed
	Total	Per $1000 of Property Assessed	
Newark	$2,898,997	7.55	1
Jersey City	1,553,073	6.03	2
Los Angeles	4,445,495	5.31	3
Cleveland	3,967,195	5.24	4
Buffalo	2,549,136	5.00	5
Detroit	2,903,591	4.85	6
Philadelphia	7,492,509	4.81	7
Pittsburgh	3,782,077	4.79	8
Kansas City	1,827,628	4.73	9
Milwaukee	2,301,913	4.50	10
Washington	2,323,239	4.32	11
New York	39,167,876	4.27	12
Indianapolis	1,509,755	4.15	13
Cincinnati	2,123,128	4.04	14
Seattle	1,903,767	4.02	15
Boston	5,802,831	3.87	16
New Orleans	1,191,076	3.79	17
Chicago	13,257,578	3.52	18
Minneapolis	2,317,698	3.49	19
St. Louis	4,171,683	3.35	20
Baltimore	2,064,713	2.85	21
San Francisco	1,879,187	1.56	22
Average	.....	4.36	..

** Data on Expenditures from Annual Report of U. S. Bureau of Education, Vol. II, 1915.

The real value of property assessed has been estimated from the assessed value and the stated rates of assessment. In these cities property other than real or personal, the percentage rate adopted is the average of the rates for real and personal property.

expenditures per $1000 of wealth for 1915 from the Report of the Bureau of Education have been supplemented by similar figures from the Bureau of Census reports for 1913 and reported in Table IXb. St. Louis occupied exactly the same position in the group in 1913 as in 1915,—20th.

TABLE IXb.—EXPENDITURES PER $1000 OF WEALTH FOR ALL CURRENT SCHOOL PURPOSES IN ST. LOUIS AND TWENTY-ONE OTHER CITIES. 1913*

City	Estimated Real Value of All Property Assessed	Expenditure for All Current School Purposes		Rank in Expenditure Per $1000 of Property Assessed
		Total	Per $1000 of Property Assessed	
Newark	$ 383,864,182	$ 2,455,820	6.40	1
Jersey City	257,644,605	1,454,539	5.63	2
Buffalo	509,565,063	2,299,563	4.51	3
Pittsburgh	789,035,200	3,494,377	4.43	4
Los Angeles	836,604,260	3,572,191	4.27	5
Washington	538,389,556	2,283,492	4.24	6
Philadelphia	1,556,323,614	6,234,612	4.01	7
Cincinnati	525,826,770	2,094,017	3.98	8
Kansas City	386,690,064	1,528,259	3.95	9
Cleveland	756,831,185	2,915,646	3.85	10
New York	9,177,495,629	34,725,251	3.18	11
Detroit	598,640,477	2,261,171	3.77	12
Milwaukee	511,720,848	1,877,435	3.67	13
New Orleans	314,086,115	1,116,625	3.55	14
Boston	1,489,608,820	4,900,268	3.29	15
Seattle	473,175,662	1,494,785	3.16	16
Indianapolis	363,413,567	1,144,208	3.14	17
Minneapolis	663,214,447	1,853,847	2.80	18
Chicago	3,761,800,684	10,403,602	2.77	19
St. Louis	**1,243,995,366**	**3,394,104**	**2.73**	**20**
Baltimore	723,800,340	1,939,800	2.68	21
San Francisco	1,247,391,284	1,882,022	1.51	22
Average	.....	.....	3.70	..

* Data from Financial Statistics of Cities, U. S. Bureau Census, 1913.

The real value of property assessed has been estimated from the assessed value and the stated rates of assessment. In these cities property other than real or personal, the percentage rate adopted is the average of the rates for real and personal property.

A very small proportion of city school revenue now goes into evening schools. The expenditures for 1914-15, as computed in a special study reported last year by the Bureau of Education range from 44 cents per pupil to 4 cents per pupil. Table X gives the figures in such expenditures for 20 cities, and shows that St. Louis is about an average city in the way in which it endows this special form of school work.

TABLE X.—TOTAL EXPENDITURES AND EXPENDITURE PER INHABITANT FOR EVENING SCHOOLS IN ST. LOUIS AND 19 OTHER CITIES. 1914-15.

City	Total Expenditure for Evening Schools *	Expenditure Per Inhabitant **	Rank of Cities in Expenditure Per Inhabitant
Newark	177,291	.443	1
Los Angeles	120,380	.266	2
Buffalo	111,000	.242	3
Pittsburgh	105,000	.186	4
New York	926,215	.174	5
Kansas City	40,000	.141	6
Detroit	65,000	.119	7
Chicago	244,744	.102	8 or 9
St. Louis	**75,000**	**.102**	**8 or 9**
Seattle***	30,000	.096	10
Cleveland	58,819	.092	11
Cincinnati	35,504	.088	12
Boston	63,000	.086	13
Minneapolis	27,154	.079	14
Philadelphia	121,202	.073	15
New Orleans	22,405	.061	16
Jersey City	17,661	.06	17
Milwaukee	24,000	.057	18
Washington	20,000	.056	19
Baltimore	22,755	.039	20
Average	.....	.128	..

* Data from American School Board Journal, August, 1916.

** Data obtained from News Letter from Bureau of Education, entitled "Striking Diversity in Evening School Budgets."

*** Data for 1915-16.

II.—How St. Louis Spends Its Money. The Extent to Which It Supports Schools as Compared with the Way It Supports Other City Departments

There are two ways in which may be determined the extent to which the city's money is going into the schools: 1—by a comparison of the absolute expenditure per inhabitant for each of the city departments; 2—by a comparison of the per cent of the total governmental cost payments that goes to each department. Neither basis for judgment is sufficient if taken alone.

Table XI shows that, for the running of all general municipal activities (including schools), St. Louis spent in 1913, $18.52 per inhabitant. This was slightly less than the average of the 23 largest cities, giving St. Louis a rank of 12th. For schools it spent $4.69 per inhabitant, considerably less than the average of the group, giving St. Louis a rank of 18th. Table XII contributes additional evidence on this point by showing that St. Louis ranks 15th in 23 cities in the per cent of its total governmental cost payments. Thus, while it spends less money on all its general departments than 11 of the cities of its class it gives a smaller per cent of its municipal income to schools than all but 5 of the cities of its class.

III.—How the Board of Education Spends Its Money

A.—THE DISTRIBUTION OF SCHOOL MONEYS BETWEEN CURRENT EXPENSE AND OUTLAY

On what kinds of educational functions does the St. Louis Board of Education tend to spend its money? Has it tended to emphasize expenditures for buildings and other permanent improvements or does it devote its major energy to the current running of the public schools, keeping up salary schedules, keeping down the size of classes?

TABLE XI.—EXPENDITURES PER INHABITANT FOR VARIOUS CITY DEPARTMENTS. 1913.*

	General Government	Police	Fire	Health	Sanitation	Highways	Charities	Schools	Total for All General Depts.
1. Baltimore	$1.74	$2.19	$1.61	$0.33	$1.52	$1.88	$1.17	$3.38	$15.01
2. Boston	2.97	3.14	2.22	0.80	2.57	2.89	2.30	6.78	27.62
3. Buffalo	2.32	2.35	2.57	0.54	1.24	3.54	1.63	5.14	21.51
4. Chicago	2.75	2.86	1.42	0.23	1.59	1.19	1.15	4.44	18.05
5. Cincinnati	2.95	2.10	2.01	0.35	1.43	2.78	1.43	5.26	20.10
6. Cleveland	2.14	1.44	1.30	0.46	1.31	1.73	0.81	4.68	15.43
7. Detroit	2.02	2.15	1.70	0.39	1.56	4.63	1.10	4.34	19.61
8. Indianapolis	0.63	1.68	2.04	0.23	1.06	1.63	0.48	4.51	13.34
9. Jersey City	1.04	2.29	1.48	0.14	0.91	1.31	0.46	5.05	13.60
10. Kansas City	2.17	1.84	1.76	0.18	1.14	1.86	1.16	5.58	17.40
11. Los Angeles	3.35	1.75	1.28	0.36	0.97	2.64	0.99	8.66	22.01
12. Milwaukee	1.96	1.51	1.69	0.38	2.36	2.51	1.31	4.59	17.95
13. Minneapolis	1.89	1.21	1.59	0.27	1.07	2.44	0.56	5.56	16.49
14. Newark	2.43	2.44	1.69	0.70	1.42	1.77	1.97	6.48	20.67
15. New Orleans	1.88	1.10	1.42	0.29	2.05	1.47	0.53	3.14	12.60
16. New York	3.25	2.89	1.69	0.55	1.92	1.88	2.09	6.68	23.95
17. Philadelphia	2.45	2.65	0.90	0.32	1.26	2.57	1.85	3.82	17.68
18. Pittsburg	3.10	2.04	1.85	0.57	1.39	2.92	1.52	6.26	22.23
19. Portland	0.80	1.38	1.63	0.11	1.15	1.69	0.09	4.73	12.46
20. San Francisco	3.45	3.35	3.63	0.35	1.14	2.12	1.85	4.27	33.73
21. Seattle	1.58	1.45	1.91	0.32	2.26	1.42	0.29	5.06	16.05
22. St. Louis	**2.30**	**2.87**	**1.51**	**0.20**	**1.88**	**2.41**	**1.22**	**4.69**	**18.52**
23. Washington	1.97	2.96	1.92	0.42	2.00	3.12	3.62	6.56	25.40
Average	....	....	....	....	....	....	....	5.20	19.19

*Data from U. S. Bureau of Census Bulletin, 126. 1913.

TABLE XII.—RANKS IN EXPENDITURES PER INHABITANT FOR VARIOUS CITY DEPARTMENTS.

City	General Government	Police	Fire	Health	Sanitation	Highways	Charities	Schools	Totals
New York	19	11	15	13	10	13–14	12	22	18
Chicago	5	2	3	1	1	5	2	2	2
Philadelphia	10	9	2	5	15	2	7	10	7
St. Louis	7	6	19–20	18–19	8	23	14	18	12
Boston	6	13	5	11–12	11	6	9	9	9
Cleveland	13	20	21	6	14	17	17	15	17
Baltimore	14	12	10	8	9	1	15	19	10
Pittsburgh	23	17	4	18–19	21	19	20	17	21
Detroit	21	10	18	22	23	22	21	12	20
Buffalo	12	15	9	21	17–18	15	13	7	15
San Francisco	2	16	22	10	22	7	16	1	6
Milwaukee	16	18	11–12–13	9	2	9	10	16	13
Cincinnati	17	22	16	17	20	10	18	8	16
Los Angeles	9	8	11–12–13	2	12	16	4	5	8
Newark	18	23	19–20	16	4	20	19	23	22
New Orleans	3	4	11–12–13	4	6	13–14	3	3	4
Washington	8	7	23	14–15	19	8	5–6	21	14
Minneapolis	4	14	8	3	13	4	8	6	5
Jersey City	22	21	14	23	16	18	23	13	23
Seattle	1	1	1	11–12	17–18	12	5–6	20	1
Kansas City	20	19	7	14–15	3	21	22	11	19
Indianapolis	11	5	17	20	7	11	11	14	11
Portland	15	3	6	7	5	3	1	4	3

TABLE XIIA.—PER CENT OF TOTAL GOVERNMENTAL COST PAYMENTS DEVOTED TO VARIOUS CITY DEPARTMENTS. 1913*

City	General Government	Police	Fire	Health	Sanitation	Highways	Charities	Schools	Rank in Per Cent Cost Payments Devoted to Schools
1. Baltimore	11.6	14.6	10.7	2.2	10.2	12.5	7.8	22.5	20
2. Boston	10.8	11.4	8.1	2.9	9.3	10.5	8.3	24.6	17–18
3. Buffalo	10.8	10.9	11.9	2.5	5.8	16.5	7.6	23.9	19
4. Chicago	15.3	15.8	7.9	1.3	8.8	6.6	6.4	24.6	17–18
5. Cincinnati	14.7	10.4	10.0	1.8	7.1	13.8	7.1	26.1	12
6. Cleveland	13.9	9.3	8.4	3.0	8.5	11.2	5.2	30.3	9
7. Detroit	10.3	11.0	8.7	2.0	8.0	23.6	5.6	22.1	21
8. Indianapolis	4.7	12.6	15.3	1.7	7.9	12.2	3.6	33.8	4
9. Jersey City	7.6	16.9	10.9	1.0	6.7	9.7	3.4	37.1	3
10. Kansas City	12.5	10.6	10.1	1.0	6.6	10.7	6.7	32.1	6
11. Los Angeles	15.2	7.9	5.8	1.6	4.4	12.0	4.5	39.4	1
12. Milwaukee	10.9	8.4	9.4	2.1	13.1	14.0	7.3	25.6	14
13. Minneapolis	11.5	7.4	9.7	1.6	6.5	14.8	3.4	33.7	5
14. Newark	11.8	11.8	8.2	3.4	6.9	8.6	9.5	31.3	8
15. New Orleans	15.0	8.8	11.3	2.3	16.2	11.7	4.2	24.9	16
16. New York	13.6	12.1	7.0	2.3	8.0	7.8	8.7	27.9	11
17. Philadelphia	13.8	15.0	5.1	1.8	7.1	14.6	10.4	21.6	22
18. Pittsburgh	13.9	9.2	8.3	2.6	6.2	13.1	6.8	28.2	10
19. Portland	6.4	11.1	13.1	0.9	9.2	13.6	0.7	38.0	2
20. San Francisco	10.2	9.9	10.8	1.0	3.4	6.3	5.5	12.7	23
21. Seattle	9.9	9.0	11.9	2.0	14.1	8.8	1.8	31.5	7
22. St. Louis	**12.4**	**15.5**	**8.2**	**1.1**	**10.2**	**13.0**	**6.6**	**25.3**	**15**
23. Washington	7.8	11.6	7.6	1.7	7.9	12.3	14.2	25.8	13
Average	....	....	....	...	....	....	....	28.0	..

* Data from Table 2, Bulletin 126, U. S. Bureau of Census. 1913.

The principal division of school expenditures is that between capital outlay and current expenditures. Prior to 1900 it was uncommon for large American cities to devote more than 10 to 15 per cent of their income to permanent improvements. Although there were great variations in practice it was common for cities to spend less than $8 to $10 per pupil for building purposes. The practice of the largest American cities, in connection with the division of total revenue between these two types of function, has undergone a decided

TABLE XIII.—AVERAGE EXPENDITURE PER PUPIL IN AVERAGE DAILY ATTENDANCE FOR CAPITAL OUTLAY, FOR 21 CITIES, 1901-1903, 1904-1906, 1907,1909, 1910-1912, 1913-1915.

City	1901-03	1904-06	1907-09	1910-12	1913-15
Baltimore	$13.46	$.	$ 5.26	$ 9.16	$ 8.14
Boston	15.46	20.65	8.62	12.39	10.07
Buffalo	7.61	5.95	18.21	7.09	31.45
Chicago	6.14	11.19	12.67	12.65	16.19
Cincinnati	2.21	4.40	24.30	22.93	. . . . .
Cleveland	10.61	10.16	9.37	14.89	13.09
Detroit	7.58	14.86	13.94	9.78	22.29
Indianapolis . . .	4.98	12.16	6.61	11.36	10.60
Jersey City . . .	6.80	9.92	11.87	16.30	14.64
Kansas City . .	6.81	12.72	16.96	12.89	32.45
Los Angeles . . .	1.73	10.45	10.62	15.88	24.79
Minneapolis . . .	2.08	4.46	9.02	16.38	17.97
Newark	3.82	7.14	15.41	20.45	15.14
New Orleans . .	10.71	0.28	18.88	5.84	1.34
New York	13.48	17.56	22.96	6.65	7.50
Philadelphia . . .	6.36	6.10	6.94	9.31	10.68
Pittsburgh	11.90	12.94	11.42	8.40	14.49
San Francisco .	1.54	1.36	14.08	46.14	14.25
Seattle	17.47	14.75	21.14	22.12	16.37
St. Louis	9.30	15.93	18.48	15.40	9.88
Washington . . .	11.21	7.36	9.32	18.26	10.09
Average	8.16	10.02	13.62	14.97	15.07

* Data Compiled from Annual Reports of U. S. Bureau of Education and U. S. Bureau of Census.

change in the past 15 years. During that time the building activities of the cities have increased very rapidly: Table XIII shows that on the average they spent $15.07 per pupil in average daily attendance in the three years interval 1913-1915, nearly twice as much as the amount spent in the three years interval 1901-1903, $8.16. It should be noted here that building activities even for these largest cities show great fluctuations in the amount spent annually. For that reason the Survey staff have taken the precaution to compute building expenditures by averaging successive three year intervals. In this way large fluctuations in any one year are smoothed out and the general practice of the cities in question can be ascertained. It was deemed insufficient to take but one three year interval and in order to establish definitely St. Louis' practice in this matter the costs for five three year intervals were computed. Each total expenditure was an arithmetic average of the expenditures for the three years in question and each average daily attendance was the corresponding arithmetic average. Tables XIII and XIV picture the facts in this situation for the 20 largest cities of the country. (For the remaining two cities over 300,000 comparable data could not be secured.)

They show clearly the tendency for the largest cities to devote an increasing amount of attention to school buildings and permanent improvements. They enable us to determine the procedure of any one city with fair degree of precision. St. Louis' buildings curve is a very good picture of the relation between its income, and the needs of the system. As far back as 1900-01 the Board began to increase rapidly its building activities. In that year a Committee of the Board made a study of St. Louis' expenditures for various educational activities and compared its procedure with that of other cities. It reported that St. Louis had fewer high school facilities than any other city of its class; that its elementary school population was increasing more rapidly than the "capital outlay" per cent of the four mill tax for all school purposes could

house it; that although that year it was putting 23.9 per cent of its total income into buildings (a larger per cent by far than the other large cities) this would be entirely insufficient to satisfy the demands for new buildings and for permanent improvements to old ones. Again in 1905-06 a similar study was made. It happens that this year the Board put 37 per cent of its income into permanent improvements, the high point in its curve. From 1905-06 to 1910-11, the Board spent annually over $1,000,000 for capital outlay, never less than 26 per cent of its entire income. This attempt to keep up its

TABLE XIV.—RANK OF 21 CITIES IN AVERAGE EXPENDITURE PER PUPIL IN AVERAGE DAILY ATTENDANCE FOR CAPITAL OUTLAY. 1901-1903, 1904-1906, 1907-1909, 1910-1912, 1913-1915.

City	1901–03	1904–06	1907–09	1910–12	1913–15
Baltimore	4	..	21	17	18
Boston	2	1	18	13	16
Buffalo	10	16	6	19	2
Chicago	15	9	11	12	7
Cincinnati	19	18	1	2	..
Cleveland	8	11	15	10	12
Detroit	11	4	10	15	4
Indianapolis	16	8	20	14	14
Jersey City	13	12	12	7	9
Kansas City	12	7	7	11	1
Los Angeles	20	10	14	8	3
Minneapolis	18	17	17	6	5
Newark	17	14	8	4	8
New Orleans	7	20	4	21	20
New York	3	2	2	20	19
Philadelphia	14	15	19	16	13
Pittsburgh	5	6	13	18	19
San Francisco	21	19	9	1	11
Seattle	1	5	3	3	6
St. Louis	9	3	5	9	17
Washington	6	13	16	5	15

* Data Compiled from Annual Reports of U. S. Bureau of Education and U. S. Bureau of Census.

building accommodations soon revealed that the mill tax, which had been raised from 4 mills to 6 mills, by four increases in 15 years—was sufficient to do two things adequately—maintain the schools and house the rapidly increasing student population. The natural outcome was two-fold: the building program was reduced, and the schools became more crowded, many portable buildings being added, and sizes of classes becoming very large. At the same time, teachers' salary schedules, although they had been increased several times, were still not on a par with many of the cities of the country working under similar conditions. Table XIV therefore indicates the trend of building activities in St. Louis by showing that St. Louis ranked 9th in 1901-03, 3rd in 1904-06, 5th in 1907-09, 9th again in 1910-12 and 17th in twenty cities in 1913-15. Whereas the average expenditure for buildings in 1913-15 was $15.07 per pupil, St. Louis was expending $9.88 per pupil. This in turn should be checked against the fact which the Survey shows, that the city has not sufficient building accommodations for its school population. Table XV and Diagram V supplement the average perspective of all the cities as given in Tables XIII and XIV by setting forth the particular annual fluctuations of the expenditures for permanent improvements in St. Louis during a period of forty-five years.

B.—THE RELATIVE EXTENT TO WHICH ST. LOUIS SUPPORTS DIFFERENT KINDS OF EDUCATIONAL SERVICE.—HOW DOES IT DISTRIBUTE "CURRENT" EXPENDITURES?

1—"Business" Versus "Educational" Expenditures. We have distinguished the principal types of expenditures as those for permanent improvements, and those for "current" expenditures, namely, those for the current operation and maintenance of schools. Current expenditures for public city schools are of two principal kinds of functions: 1—educational,—those dealing directly with problems of the in-

TABLE XV.—COMPARISON OF AMOUNT SPENT FOR CURRENT EXPENSES WITH AMOUNT SPENT FOR PERMANENT IMPROVEMENTS. ST. LOUIS, 1870-71 to 1914-15.

Year	Total "Current" Expenditures	Total Permanent Outlay	Per Cent of Total Annual Expenditures Devoted to:	
			Current Expense	Permanent Outlay
1870-71	$ 555,321.65	$ 197,313.99	74	26
1871-72	604,923.30	152,698.69	80	20
1872-73	671,895.84	133,904.54	83	17
1873-74	746,990.80	88,831.17	90	10
1874-75	771,068.32	44,345.57	95	5
1875-76	736,727.51	21,388.19	97	3
1876-77	769,712.89	152,357.97	83	17
1877-78	824,303.05	175,902.93	83	17
1878-79	873,780.32	58,208.55	94	6
1879-80	833,699.07	1,501.92	99.8	0.2
1880-81	811,311.52	11,953.00	98	2
1881-82	877,051.72	130,469.10	87	13
1882-83	886,356.01	160,446.39	85	15
1883-84	905,957.30	50,854.37	95	5
1884-85	913,569.58	56,926.20	94	6
1885-86	957,280.28	89,972.31	91	9
1886-87	995,349.63	38,466.00	96	4
1887-88	1,035,794.23	38,100.00	96	4
1888-89	1,026,944.14	178,070.69	85	15
1889-90	1,075,206.81	106,340.48	91	9
1890-91	1,054,667.33	217,999.89	83	17
1891-92	1,188,413.66	442,242.91	73	27
1892-93	1,191,382.88	544,396.69	69	31
1893-94	1,246,978.65	364,493.19	72	22
1894-95	1,268,208.66	314,500.09	80	20
1895-96	1,482,616.94	389,146.44	78	22
1896-97	1,479,249.60	237,799.80	86	14
1897-98	1,328,638.66	145,461.08	90	10
1898-99	1,470,146.39	490,304.35	75	25
1899-00	1,534,024.45	452,179.47	77	23
1900-01	1,600,183.10	346,516.91	82	18

* Data from Annual Report of the St. Louis Board of Education, 1914-15, pp. 662-63.

TABLE XV—*Continued.*—COMPARISON OF AMOUNT SPENT FOR CURRENT EXPENSES WITH AMOUNT SPENT FOR PERMANENT IMPROVEMENTS. ST. LOUIS, 1870-71 TO 1914-15.
PROVEMENTS. ST. LOUIS, 1870-71 TO 1914-15.

Year	Total "Current" Expenditures	Total Permanent Outlay	Per Cent of Total Annual Expenditures Devoted to:	
			Current Expense	Permanent Outlay
1901-02	1,676,957.42	486,455.63	77	23
1902-03	1,752,991.65	602,723.07	74	26
1903-04	2,031,388.53	831,975.50	71	29
1904-05	2,108,496.72	746,164.38	74	26
1905-06	2,157,148.16	1,258,821.06	63	37
1906-07	2,281,394.57	1,031,238.01	69	31
1907-08	2,622,378.11	1,167,226.18	69	31
1908-09	2,772,385.24	1,478,381.02	65	35
1909-10	2,912,524.85	1,197,336.68	71	29
1910-11	3,260,854.70	1,140,731.75	74	26
1911-12	3,433,592.64	830,377.97	80	20
1912-13	3,482,456.78	783,321.99	82	18
1913-14	4,068,864.22	735,092.54	85	15
1914-15	4,226,305.82	721,324.66	85	15

* Data from Annual Report of the St. Louis Board of Education, 1914-15, pp. 662-63.

struction of pupils; 2—non-educational or "business" functions,—those dealing only indirectly with the work of instruction. In this report all expenditures for "educational" purposes will include the following activities:

Salaries and expenditures of educational administrative staff, office, etc.;

Salaries and expenses of supervisors, principals and their clerks, and salaries of teachers;

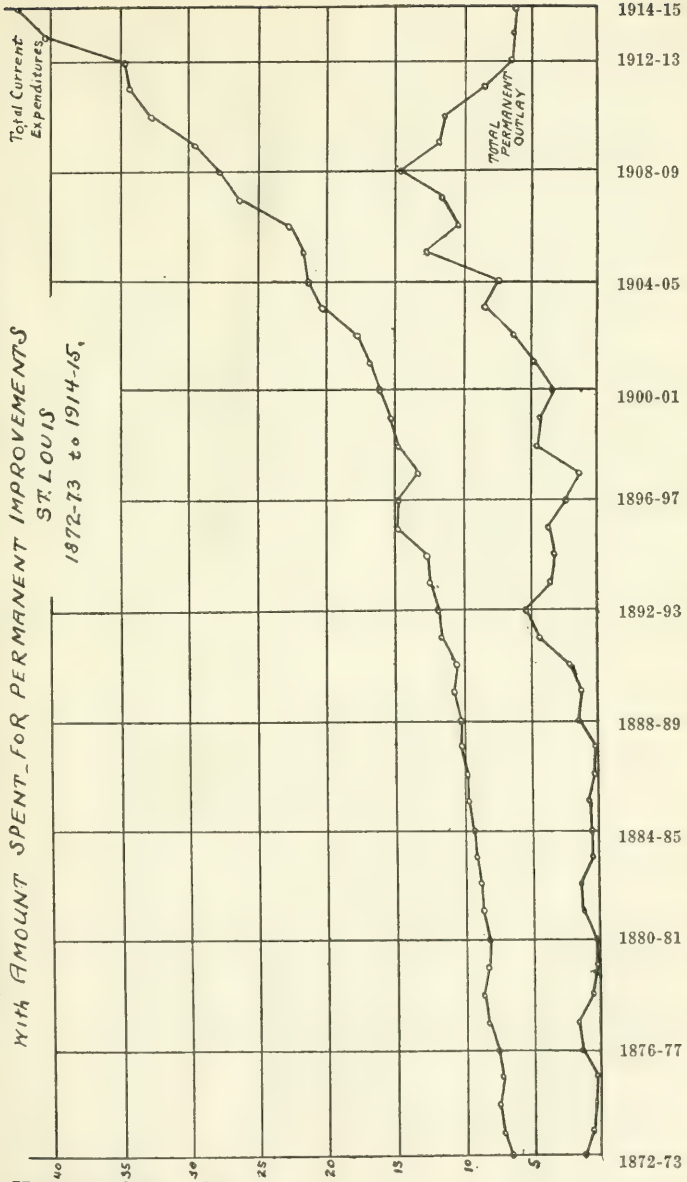
School supplies; text-books;

Instructional expense for special schools;

Other miscellaneous instructional expense.

DIAGRAM V

COMPARISON OF AMOUNT SPENT FOR CURRENT PURPOSES WITH AMOUNT SPENT FOR PERMANENT IMPROVEMENTS ST. LOUIS 1872-73 to 1914-15.



Under "business" purposes will be included expenditures of all "business" administration, *i. e.*:

Offices in charge of finance, accounting, buildings, and supplies.

All operation of buildings, including salaries and expenses of janitors and engineers;

Fuel, water, light and power;

All maintenance, including labor and materials in repairs, and replacement of equipment.

An analysis of expenditures should distinguish very carefully the emphasis that has been laid on these two general types of school work in the city. It should be followed up by a more minute analysis of the specific extent to which the Board gives its attention to various activities of the system. The broader analysis should be made first, however. We shall wish four types of fact: 1—During a course of years what proportion of St. Louis' total current expenditures has been used for educational and for business purposes? 2—How does the expenditure per pupil for educational and business purposes in St. Louis compare with that in the other cities of its class? 3—What proportion of current expenditures have St. Louis and the other cities of its class given to each of these kinds of purposes? 4—To what degree have the development of educational and business "administrative" expenditures, increases in salary schedules, increases in maintenance, expense, etc., contributed to the distribution of expenditures between these two functions?

Table XVI shows the division of current expenditures between these major functions for the past six years. Table XVII shows the same division among the 22 largest cities in 1915. The latter, then, indicates the practice of the largest American cities in this matter. It is seen that there is great variability among these cities, the percentage of total current expenditure going to business purposes ranging from 9.8 per cent in San Francisco to 31.38 per cent in Kansas City. It is true, however, that 17 of the 22 cities spend 80 per cent or

more for educational purposes. In 1915 St. Louis ranked 20th according to the *proportion* of its current expenditures going to educational purposes. It is not sufficient, however, to judge a city's procedure of the *proportion* of the expenditure it devotes to certain purposes. It may be devoting a small proportion to educational activities at the same time that it devotes to such purposes *absolutely* more money than do other cities of its class. Table XVIII and Diagram VI shows the amount spent per pupil in average daily attendance for both types of work. St. Louis is now seen to rank 13th in its absolute expenditure for educational purposes and 3rd in its expenditure for business purposes. That is, it gives a smaller proportion of its money to educational purposes than all but two cities and at the same time spends *absolutely* somewhat less than the average city on such purposes. Five cities of the group, Buffalo, Kansas City, Washington, Jersey City, and Cleveland spend within $2.00 per pupil of the amount given by St. Louis to these activities. It is a significant finding of this report, however, that it is 3rd in its absolute expenditures for business purposes. The succeeding more minute analysis of the procedure in St. Louis reveals exactly

TABLE XVI.—TOTAL CURRENT EXPENDITURES AND PER CENT OF ALL EDUCATIONAL AND BUSINESS PURPOSES IN ST. LOUIS, 1909-10 TO 1914-15*

Year	Total Amount Spent for:		Per cent of Total Devoted to:	
	Educational Purposes	Business Purposes	Educational Purposes	Business Purposes
1909-10	$2,162,984.61	$ 551,781.18	79.6	20.4
1910-11	2,446,778.82	643,496.38	79.1	20.8
1911-12	2,545,225.92	686,691.44	78.7	21.2
1912-13	2,631,366.98	642,066.81	80.2	19.8
1913-14	2,763,409.46	1,053,421.70	72.1	27.9
1914-15	2,902,742.76	921,978.06	75.9	24.1

* Data Compiled from Annual Reports of Board of Education, St. Louis.

TABLE XVII.—COMPARISON OF TOTAL PER CENT AND RANK IN PER CENT OF ALL CURRENT EXPENDITURES DEVOTED TO EDUCATIONAL AND BUSINESS PURPOSES, 22 CITIES. 1915*

City	Per cent of All Current Expenditures Devoted to:		Rank in Per cent of All Current Expenditures Devoted to:	
	Educational Purposes	Business Purposes	Educational Purposes	Business Purposes
1. San Francisco	90.20	9.80	1	22
2. New York	88.95	11.05	2	21
3. Baltimore	86.69	13.31	3	20
4. Newark	86.26	13.74	4	19
5. New Orleans	84.95	15.05	5	18
6. Los Angeles	84.41	15.59	6	17
7. Jersey City	84.28	15.72	7	16
8. Philadelphia	83.39	16.61	8	15
9. Cincinnati	83.27	16.73	9	14
10. Washington	83.21	16.79	10	13
11. Buffalo	82.89	17.11	11	12
12. Detroit	81.87	18.13	12	11
13. Seattle	81.73	18.27	13	10
14. Chicago	81.62	18.48	14	9
15. Boston	80.70	19.30	15	8
16. Minneapolis	80.27	19.73	16	7
17. Indianapolis	80.00	20.00	17	6
18. Milwaukee	79.53	20.47	18	5
19. Cleveland	77.72	22.28	19	4
20. St. Louis	76.17	23.83	20	3
21. Pittsburgh	75.20	24.80	21	2
22. Kansas City	68.62	31.38	22	1
Average	81.90	18.10	..	..

* Data from Annual Report of U. S. Commissioner of Education, 1915, Vol. II.

TABLE XVIII.—COMPARISON OF CURRENT EXPENDITURES PER PUPIL IN AVERAGE DAILY ATTENDANCE FOR ALL EDUCATIONAL AND ALL BUSINESS PURPOSES, IN 21 CITIES. 1915*

City	Total Expenditures for		Expenditures per Pupil in Average Daily Attendance		Rank in Expenditures per Pupil	
	Educational Purposes	Business Purposes	Educational Purposes	Business Purposes	Educational Purposes	Business Purposes
1. Los Angeles	$3,692,366	$ 681,855	$63.92	$11.80	1	4
2. Seattle	1,516,550	339,042	49.53	11.07	2	5
3. New York	33,752,716	4,191,305	48.27	5.99	3	19
4. Boston	4,553,839	1,089,229	45.86	10.97	4	6
5. Minneapolis	1,837,917	451,768	43.36	10.65	5	8
6. Indianapolis	1,126,594	274,952	43.04	10.50	6	9
7. Pittsburgh	2,773,636	914,630	42.91	14.15	7	2
8. Newark	2,445,338	389,647	42.83	6.83	8	17
9. Cincinnati	1,705,350	342,782	42.54	8.53	9	12
10. Buffalo	2.076,003	428,661	41.37	8.54	10	11
11. Kansas City	1,414,492	646,798	40.71	18.61	11	1
12. Washington	1,894,467	382,269	40.29	8.13	12	14
13. St. Louis	3,146,472	984,503	39.73	12.43	13	3
14. Jersey City	1,295,694	241,818	38.09	7.11	14	16
15. Cleveland	2,989,580	856,982	37.87	10.85	15	7
16. Milwaukee	1,782,289	458,906	36.79	9.47	16	10
17. Chicago	10,671,489	2,418,786	36.64	8.30	17	13
18. Detroit	2,376,193	526,273	34.53	7.64	18	15
19. Philadelphia	6,035,738	1,202,046	33.20	6.61	19	18
20. Baltimore	1,782,603	273,654	28.44	4.36	20	21
21. New Orleans	984,996	174,537	25.38	4.50	21	20
Average	.....	.....	$40.73	$9.36		

* Data from Annual Report U. S. Commissioner of Education, 1915, Vol. II.
No data reported for San Francisco on Average Daily Attendance.

DIAGRAM VI

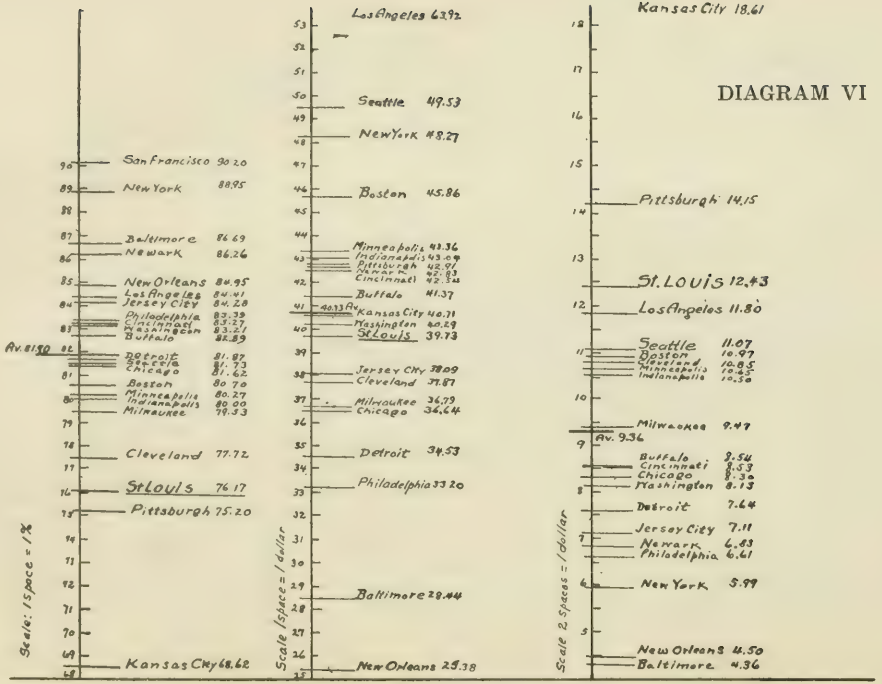
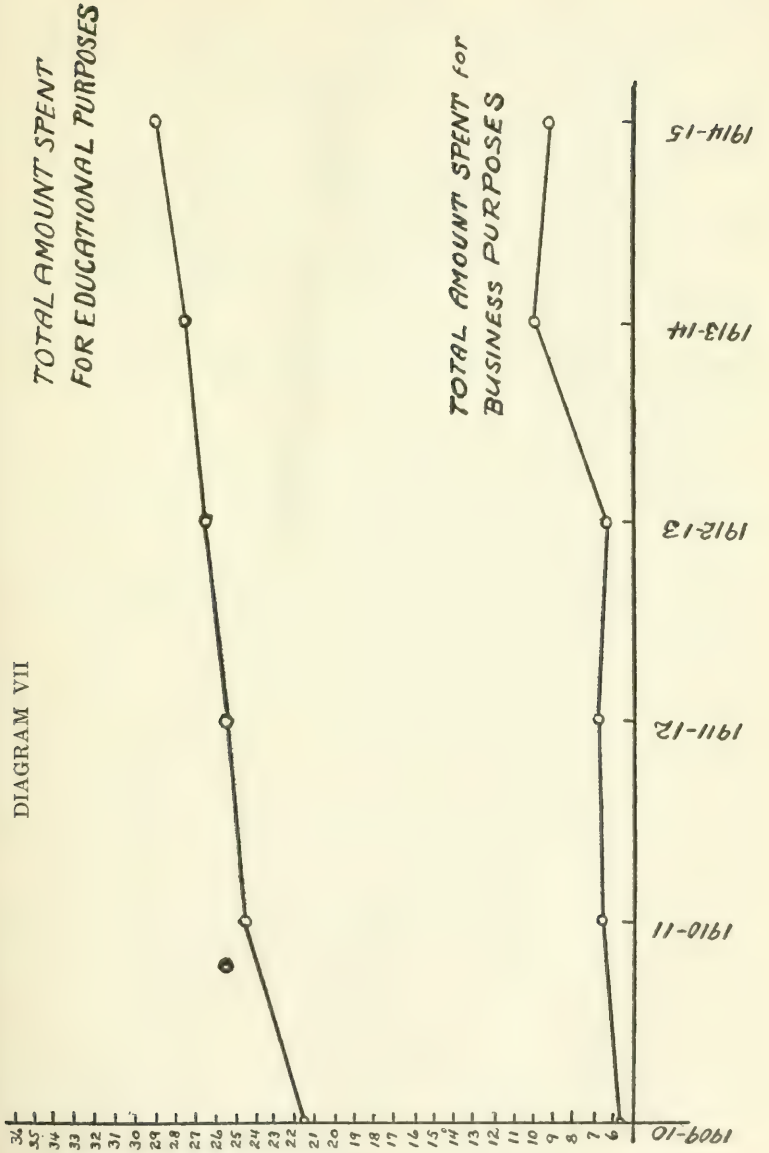

Scale: 1 Space = 1¢
Av. 81.50
90 San Francisco 90.20
89 New York 88.95
87 Baltimore 86.69
86 Newark 86.26
85 New Orleans 84.95
84 Los Angeles 84.41
84 Jersey City 84.28
83 Philadelphia 83.39
83 Cincinnati 83.27
83 Washington 83.21
82 Buffalo 82.89
82 Detroit 81.87
81 Boston 81.73
81 Chicago 81.62
80 Minneapolis 80.27
80 Indianapolis 80.00
79 Milwaukee 79.33
77 Cleveland 77.72
76 St Louis 76.17
75 Pittsburgh 75.20
68 Kansas City 68.62
Expenditures for all School Purposes Per inhabitant in 22 cities
Scale 1 Space = 1 dollar
53 Los Angeles 53.92
50 Seattle 49.53
48 New York 48.27
45 Boston 45.86
43 Minneapolis 43.36
43 Indianapolis 43.09
43 Pittsburgh 42.91
42 Newark 42.83
42 Cincinnati 42.34
41 Buffalo 41.37
41 Kansas City 40.71
40 Washington 40.29
40 St Louis 39.73
38 Jersey City 38.09
38 Cleveland 37.87
37 Milwaukee 36.79
36 Chicago 36.44
35 Detroit 34.53
33 Philadelphia 33.20
29 Baltimore 28.44
26 New Orleans 25.38
Expenditures per Pupil in Average daily attendance for all Educational Purposes, 1915. 21 cities
Scale 2 Spaces = 1 dollar
18 Kansas City 18.61
14 Pittsburgh 14.15
12 St Louis 12.43
12 Los Angeles 11.80
11 Seattle 11.07
11 Boston 10.97
11 Cleveland 10.85
11 Minneapolis 10.35
11 Indianapolis 10.30
9 Milwaukee 9.47
Av. 9.34
8 Buffalo 8.54
8 Cincinnati 8.53
8 Chicago 8.36
8 Washington 8.13
7 Detroit 7.44
7 Jersey City 7.11
7 Newark 6.83
7 Philadelphia 6.61
5 New York 5.99
4 New Orleans 4.50
4 Baltimore 4.36
Expenditures per Pupil in Average daily attendance for all Business Purposes, 1915 21 Cities

DIAGRAM VII



Scale: 1 space = $200,000.

TABLE XIX.—COMPARISON OF PER CENT OF EXPENDITURES DEVOTED TO BUSINESS ADMINISTRATION AND EDUCATIONAL ADMINISTRATION IN ST. LOUIS AND 21 OTHER CITIES. 1910, 1911, 1912*

City	1910				1911				1912			
	Amount		Rank		Amount		Rank		Amount		Rank	
	Educational	Business	Educational	Business	Educational	Business	Educational	Business	Educational	Business	Educational	Business
*Buffalo	$68.71	$31.29	1	22	$52.12	$47.88	7	16	$52.89	$47.11	9	14
Newark	64.49	35.51	2	21	71.88	28.12	1	22	67.19	32.81	3	20
*Baltimore	52.56	37.44	3	20	64.77	35.23	3	20	71.36	28.64	2	21
Boston	54.13	45.87	4	19	48.30	51.70	15	8	55.59	44.41	7	16
Indianapolis	50.81	49.19	5	18	48.56	51.44	13	10	49.53	50.47	13	10
*Philadelphia	50.08	49.92	6	17	46.71	53.29	17	6	58.83	41.17	6	17
*Washington	48.53	51.47	7	16	53.72	46.28	6	17	62.60	37.40	4	19
New Orleans	47.61	52.39	8	15	49.62	50.38	10	13	47.64	52.36	15	8
*New York	47.44	52.56	9	14	49.23	50.76	11	12	49.22	50.78	14	9
*Detroit	46.86	53.14	10	13	48.95	51.05	12	11	39.23	60.67	19	4
Milwaukee	46.85	53.15	11	12	51.10	48.90	9	14	51.45	48.55	11	12
Pittsburgh	46.03	53.93	12	11	46.03	53.97	18	5	32.82	67.18	21	2
*Jersey City	45.88	54.12	13	10	68.87	31.13	2	21	83.22	16.68	1	22
Seattle	42.99	57.01	14	9	54.48	45.52	5	18	44.53	55.47	16	7
Cincinnati	41.75	58.25	15	8	48.17	51.83	16	7	50.49	49.51	12	11
Los Angeles	34.60	65.40	16	7	54.69	45.31	4	19	62.43	37.57	5	18
*Minneapolis	34.10	65.90	17	6	37.82	62.18	20	3	54.04	45.96	8	15
Cleveland	31.14	68.86	18	5	51.25	48.85	8	15	43.50	56.50	17	6
St. Louis	**30.24**	**69.76**	**19**	**4**	**35.01**	**64.99**	**21**	**2**	**36.85**	**63.15**	**20**	**3**
Kansas City	28.10	71.90	20	3	31.42	68.58	22	1	25.20	74.80	22	1
*Chicago	24.94	75.06	21	2	44.02	55.98	19	4	41.58	58.42	18	5
*San Francisco	24.77	75.23	22	1	48.40	51.60	14	9	51.95	48.05	10	13

* Data from "Financial Statistics of Cities," U. S. Bureau of Census, 1910, 1911, 1912.

TABLE XX.—EXPENDITURES PER PUPIL FOR OFFICE OF BUILDINGS DEPARTMENT AND OFFICE OF SUPPLIES DEPARTMENT IN 8 CITIES, 1910, 1911, 1912*

City	1910				1911				1912			
	Office in Charge of Buildings		Office in Charge of Supplies		Office in Charge of Buildings		Office in Charge of Supplies		Office in Charge of Buildings		Office in Charge of Supplies	
	Total Expenditure	Expenditure Per Pupil in Average Daily Attendance	Total Expenditure	Expenditure Per Pupil in Average Daily Attendance	Total Expenditure	Expenditure Per Pupil in Average Daily Attendance	Total Expenditure	Expenditure Per Pupil in Average Daily Attendance	Total Expenditure	Expenditure Per Pupil in Average Daily Attendance	Total Expenditure	Expenditure Per Pupil in Average Daily Attendance
Chicago	$37,063	$0.15	$24,565	$0.10	$37,392	$0.14	$29,764	$0.12	$43,179	$0.16	$35,333	$0.13
Cleveland . .	12,915	0.18	6,372	0.09	12,219	0.16	6,978	0.09	.....	....	.....	....
Denver	6,694	0.24	4,284	0.15	6,609	0.23	5,844	0.20	8,825	0.30	.....	....
Indianapolis	6,044	0.23	5,958	0.23	6,175	0.22	4,910	0.18	3,770	0.13	4,550	0.16
Kansas City	14,029	0.50	3,014	0.11	15,064	0.55	2,975	0.11	13,016	0.45	4,724	0.16
Los Angeles	.....	....	.....	....	8,180	0.20	6,080	0.15	5,867	0.12	6,046	0.12
Seattle	9,188	0.32	3,181	0.11	2,057	0.07	7,352	0.27	17,054	0.58	4,999	0.17
St. Louis . .	**64,535**	**0.92**	**19,015**	**0.27**	**44,853**	**0.66**	**15,626**	**0.23**	**48,018**	**0.60**	**15,838**	**0.20**

* Data from U. S. Bureau of Census, "Financial Statistics of Cities," 1910, 1911, 1912.

where this large business expenditure is to be found. We may call attention here, however, to the fact that although historically the city began to spend a much larger proportion of its money for business in 1913-14 than prior to that time, it has emphasized that phase of its school work more than the other cities of its class each year during the past six years.

A large "business" expenditure could be contributed to by three factors: 1—an unduly heavy business administration; 2—a high cost for janitorial service; 3—an unduly large expenditure for upkeep of school plant. This report will show that each of these factors contributes to this condition.

In looking for an explanation of the fact that the Board of Education in St. Louis has tended to pay relatively more attention to business functions than to purely educational ones, we may first study more minutely "administration" expenses during the past years. In 1910, 1911 and 1912 the United States Bureau of Census classified the expenditures of cities for school administration very minutely. Table XIX presents a compilation, from these records for each of these three years, of the per cent of *all administrative expense,* devoted to *business* administration and to *educational* administration according to the classification of this Bureau. It shows that St. Louis was consistently at the top of the list in its emphasis on matters of business administration, fourth, second, and third in 1910, 1911, and 1912, respectively. On another page of this report an analysis of the efficiency of these central departments shows that the administrative salaries are much higher in St. Louis than in the other cities of its class and that the administrative scheme that has been developed there requires a much larger number of high salaried officers. Furthermore, for 1910, 1911, and 1912 the Census statistics have been computed to give Table XX,—a statement of the cost per pupil in average daily attendance, for the office in charge of buildings and the office in charge of supplies in 8 cities. It reveals that "buildings" administration was more expensive in St. Louis than any other city in each year, and

that "supplies" administration was more expensive than the other 7 cities in 1910-12 and more expensive than 6 of the other seven cities in 1911. Furthermore, St. Louis spent two to four times as much per pupil for the administration of these particular activities. It should be stated, however, that this is one of the phases of school activity in which different school systems are very difficult to compare. Some school systems supply little and handle their supplies badly. The high costs in St. Louis are explained by a highly organized and thoroughly efficient system. Attention is also called in this later reference to the fact that one reason for the seemingly heavy cost of buildings "administration" in St. Louis may be due to including the expenditures for each of the "building-superintendents" with the "office" expenditure, whereas it is possible that other cities have not done so. In spite of this, however, it is shown that St. Louis would still rank first in each of its administrative expenditures.

Before leaving the question of administrative expense it should be indicated that during the past ten years, office expenditures have increased by leaps and bounds in every office except the office in charge of buildings. In a comparison of the amounts spent for office salaries and for all office expenses for each year since 1906-07 for the offices of the Superintendent of Schools, the Commissioner of Buildings, the Commissioner of Supplies, the Auditor and the Secretary-Treasurer, the office in charge of the buildings has shown practically no increases in the ten years; that of the Superintendent of Schools, a very large increase (it includes the salaries of assistant superintendents of schools, salaries and expense of the Attendance of Hygiene departments). The large increase in 1914-15 in the expenditure for this office is contributed to by very large increases to the staff of the departments of Hygiene and Attendance. The office in charge of supplies has shown a very steady increase from $9,000 to $12,000.—an increase of one-third; the Auditor's office expense more than doubled in the decade and the salaries in the Finance department more

than doubled in the same interval. The latter office during this same time has had a very stable tenure, the average tenure of the entire finance clerical staff at the present time being 9½ years. It is shown later that the expenses for Auditing and Finance in St. Louis are relatively much higher than those of other cities of its class.

As a result of this analysis of expenditures for "administration" it has been shown that an unusually large expense for "business administration" contributes a considerable share to a large emphasis on the "business" aspects of the school activities in St. Louis. Succeeding sections will indicate, among other things, the degree to which janitorial service and upkeep of the plant make further contributions.

2. The Board's Distribution of "Current" Expenditures for the Principal Kinds of Service. Service which contributes to the running of the public schools is of four principal classes: Administration, Supervision and Instruction, Operation of the plant, and Maintenance of the plant. These principal classes of service generally are subdivided into: 1—the more specific activities of various types of Administration; 2—Instruction and Supervision, including salaries and expenses of supervisors, salaries and expenses of principals and their clerks, salaries of teachers, instructional supplies; 3—Operation of the plant, including: salaries of janitors and engineers, and other operating employees, janitorial supplies, fuel, water, light and power; 4—Maintenance of the plant, including all labor and materials for repairs and replacement of equipment.

Table XXII shows the total amount spent for each of the principal kinds of service; Table XXIII and Diagram and Table XXIV show the *amount spent per pupil* and the rank of twenty-one cities in such expenditures. Tables XXV and XXVI show the per cent of total "current" expenditures devoted to each of these principal classes of service. The five tables, therefore, enable us to answer the question: To what extent does the Board of Education in St. Louis support the principal different kinds of service?

TABLE XXII.—DISTRIBUTION OF TOTAL CURRENT EXPENDITURES FOR VARIOUS KINDS OF EDUCATIONAL SERVICE, 21 CITIES, 1915*

City	Administration	Supervision and Instruction	Operation of Plant	Maintenance of Plant	Total
1. Baltimore	$ 54,879	$ 1,747,116	$ 231,683	$ 22,579	$ 2,056,257
2. Boston	312,473	4,432,002	600,819	292,656	5,637,950
3. Buffalo	64,312	2,020,341	319,614	100,379	2,504,646
4. Chicago	524,377	10,444,298	1,673,035	425,686	13,067,396
5. Cincinnati	56,177	1,674,033	205,363	108,617	2,044,190
6. Cleveland	183,902	2,926,433	459,872	267,557	3,837,764
7. Detroit	91,247	2,328,421	376,271	105,109	2,901,048
8. Indianapolis	64,031	1,103,730	161,241	72,547	1,401,549
9. Jersey City	41,385	1,263,079	159,560	72,788	1,536,812
10. Kansas City	88,842	1,381,749	196,755	46,124	1,713,110
11. Los Angeles	208,321	3,649,621	290,093	226,204	4,374,239
12. Milwaukee	61,634	1,745,736	259,668	172,122	2,239,160
13. Minneapolis	72,746	1,797,944	234,264	184,731	2,289,685
14. Newark	125,020	2,385,208	270,416	52,841	2,833,485
15. New Orleans	34,823	968,484	120,347	35,387	1,159,041
16. New York	1,368,431	32,746,429	2,404,910	1,313,074	37,832,844
17. Philadelphia	370,265	5,895,541	737,625	240,993	7,244,424
18. Pittsburgh	227,762	2,695,972	492,752	271,780	3,688,266
19. Seattle	75,540	1,486,707	197,064	94,751	1,854,062
20. St. Louis	287,319	3,036,270	457,649	351,737	4,132,975
21. Washington	39,384	1,877,908	223,217	136,163	2,276,672

* Data from Annual Report U. S. Commissioner of Education, Vol. 2, 1915.

TABLE XXIII.—CURRENT EXPENDITURES PER PUPIL IN AVERAGE DAILY ATTENDANCE. 21 CITIES. 1915*

City	Average Daily Attendance	Administration	Supervision and Instruction	Operation of Plant	Maintenance of Plant	Total
1. Baltimore	62,794	$0.87	$27.82	$3.69	$0.36	$32.75
2. Boston	99,289	3.15	44.64	6.05	2.94	56.78
3. Buffalo	50,176	1.28	40.26	6.37	2.00	49.91
4. Chicago	291,255	1.80	35.86	5.74	1.46	44.86
5. Cincinnati	40,181	1.40	41.66	5.11	2.70	50.87
6. Cleveland	78,937	2.33	37.07	5.83	3.38	48.61
7. Detroit	68,810	1.32	33.84	5.47	1.53	42.16
8. Indianapolis	26,176	2.45	42.16	6.16	2.77	53.54
9. Jersey City	34,015	1.21	37.13	4.69	2.14	45.18
10. Kansas City	34,749	2.55	39.76	5.66	1.33	49.30
11. Los Angeles	57,767	3.61	63.18	5.02	3.91	75.72
12. Milwaukee	48,472	1.27	36.02	5.36	3.55	46.20
13. Minneapolis	42,383	1.71	42.42	5.53	4.36	54.02
14. Newark	57,018	2.19	41.83	4.74	0.93	49.69
15. New Orleans	38,812	0.90	24.95	3.10	0.91	29.86
16. New York	649,291	1.95	46.83	3.44	1.88	54.10
17. Philadelphia	181,769	2.04	32.43	4.06	1.32	39.85
18. Pittsburgh	64,639	3.52	41.71	7.62	4.20	57.05
19. Seattle	30,621	2.47	48.54	6.44	3.10	60.55
20. St. Louis	**79,205**	**3.63**	**38.33**	**5.78**	**4.44**	**52.18**
21. Washington	47,016	0.84	39.94	4.75	2.89	48.42
Average	.....	2.02	39.83	5.27	2.48	49.60

* Data from Annual Report of the U. S. Bureau of Education, Vol. 2, 1915.

DIAGRAM VIII

COMPARISON of Expenditures per Pupil in Average daily attendance for various principal kinds of service in St. Louis with average Expenditures of 21 Cities of its class.

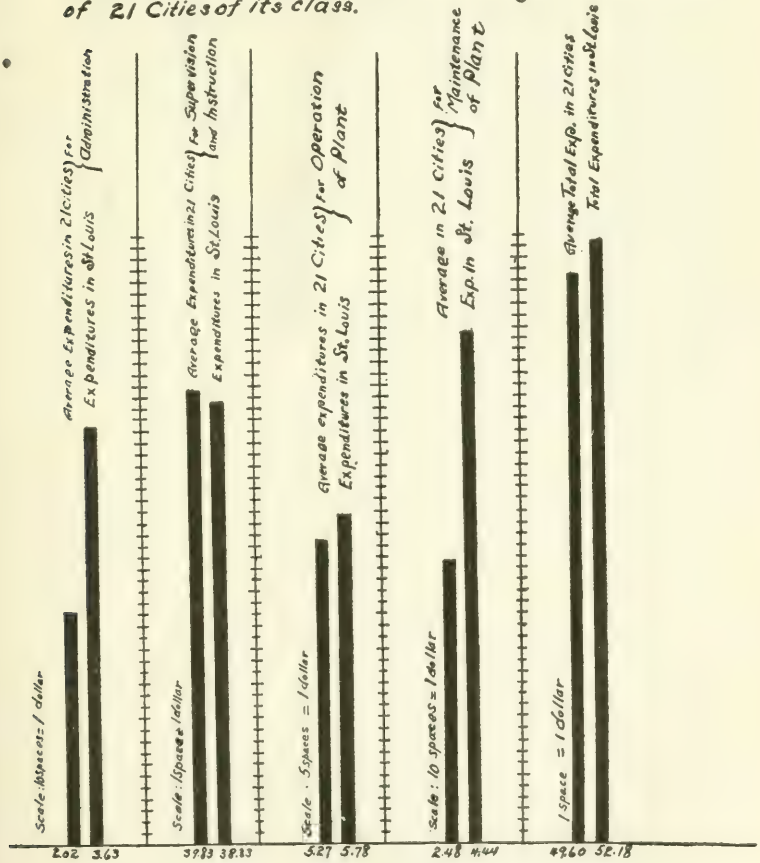


TABLE XXIV.—RANK OF CITIES IN CURRENT EXPENDITURES PER PUPIL IN AVERAGE DAILY ATTENDANCE. 21 CITIES. 1915*

Cities	Administration	Supervision and Instruction	Operation of Plant	Maintenance of Plant	Total
1. Baltimore	20	20	19	21	20
2. Boston	4	4	5	8	4
3. Buffalo	16	10	3	13	10
4. Chicago	12	17	8	16	17
5. Cincinnati	14	9	13	11	9
6. Cleveland	8	15	6	6	13
7. Detroit	15	18	11	15	18
8. Indianapolis	7	6	4	10	7
9. Jersey City	18	14	17	12	16
10. Kansas City	5	12	9	17	12
11. Los Angeles	2	1	14	4	1
12. Milwaukee	17	16	12	5	15
13. Minneapolis	13	5	10	2	5
14. Newark	9	7	16	19	11
15. New Orleans	19	21	21	20	21
16. New York	11	3	20	14	6
17. Philadelphia	10	19	18	18	19
18. Pittsburg	3	8	1	3	3
19. Seattle	6	2	2	7	2
20. St. Louis	1	13	7	1	8
21. Washington	21	11	15	9	14

* Data from Annual Report of the U. S. Bureau of Education, Vol. 2, 1915.

TABLE XXV.—PER CENT OF CURRENT EXPENDITURES DEVOTED TO VARIOUS PRINCIPAL CLASSES OF EDUCATIONAL SERVICE. 21 CITIES. 1915*

Cities	Administration	Supervision and Instruction	Operation of Plant	Maintenance of Plant
1. Baltimore	2.67	84.97	11.27	1.09
2. Boston	5.54	78.61	10.66	5.19
3. Buffalo	2.57	80.66	12.76	4.01
4. Chicago	4.00	79.93	12.80	3.26
5. Cincinnati	2.74	81.90	10.05	5.31
6. Cleveland	4.79	76.25	11.98	6.97
7. Detroit	3.15	80.26	12.97	3.62
8. Indianapolis	4.57	78.75	11.50	5.17
9. Jersey City	2.69	82.19	10.38	4.74
10. Kansas City	5.16	80.66	11.49	2.69
11. Los Angeles	4.76	83.43	6.63	5.17
12. Milwaukee	2.75	77.96	11.60	7.69
13. Minneapolis	3.18	78.52	10.23	8.07
14. Newark	4.41	84.18	9.54	1.86
15. New Orleans	3.00	83.56	10.38	3.05
16. New York	3.62	86.55	6.36	3.47
17. Philadelphia	5.11	81.38	10.18	3.33
18. Pittsburg	6.17	73.10	13.36	7.37
19. Seattle	4.07	80.19	10.63	5.11
20. St. Louis	6.95	73.46	11.07	8.52
21. Washington	1.73	82.48	9.80	5.98
Average	3.98	80.43	10.74	4.84

* Data from Annual Report U. S. Commissioner of Education, Vol. 2, 1915.

TABLE XXVI.—RANK OF 21 CITIES IN PER CENT OF CURRENT EXPENDITURES DEVOTED TO VARIOUS KINDS OF EDUCATIONAL SERVICE, 1915*

Cities	Administration	Supervision and Instruction	Operation of Plant	Maintenance of Plant
1. Baltimore	18	2	9	21
2. Boston	3	16	11	8
3. Buffalo	20	10–11	4	13
4. Chicago	11	14	3	17
5. Cincinnati	17	8	17	7
6. Cleveland	6	19	5	5
7. Detroit	14	12	2	14
8. Indianapolis	8	15	7	9–10
9. Jersey City	19	7	13–14	12
10. Kansas City	4	10–11	8	19
11. Los Angeles	7	5	20	9–10
12. Milwaukee	16	18	6	3
13. Minneapolis	13	17	15	2
14. Newark	9	3	19	20
15. New Orleans	15	4	13–14	18
16. New York	12	1	21	15
17. Philadelphia	5	9	16	16
18. Pittsburg	2	21	1	4
19. Seattle	10	13	12	11
20. St. Louis	1	20	10	1
21. Washington	21	6	18	6

* Data from Annual Report U. S. Commissioner of Education, Vol. 2, 1915.

Tables XXIII and XXIV show that St. Louis is spending more money per pupil in average daily attendance for purpose of school administration and upkeep of the school plant than any other city in its class. It is in the top third of the list in its support of the operation of the school plant. On

the other hand it spends less than the average of the twenty-one cities for supervision and instruction. This rough analysis reveals where the Board's attention is being most largely directed,—to the various administrative aspects and to the upkeep of the school plant. It shows that in operation of the plant the system is about "average" but that in attention to purely instructional matters it is below the average. This analysis of actual expenditures per pupil, revealing as it does a lack of emphasis on purely instructional matters, is strongly confirmed by the data of tables XXV and XXVI which give the proportion of activities. St. Louis devotes a very much larger per cent of its current expenditure to administration and to upkeep (standing first in twenty-one cities) than do the other cities of its class,—fully three-fourths again as much as the average of the class in each case. It devotes a smaller proportion (73.10 per cent) of its current expenditures to supervision and instruction than all but one other city in the group. From both the standpoint of actual expenditure per pupil and the percentage distribution of current expenditures among different activities it is shown that the Board has been emphasizing very decidedly non-educational functions.

The large administrative expense has been discussed in part in connection with the comparison of business and educational expenditures. The discussions of Part II of this report will show clearly that the elaborate administrative scheme that has been built up, especially in the business departments, has tended to lead to an unusually large financial outlay for such purposes. It will be shown that some of this large expenditure can be justified.

In Part 2 the discussion of the Buildings Department will show in detail, that St. Louis is spending more money than other cities on the upkeep of its school plant for these specific reasons: 1—It operates a wage scale for Board's mechanics at a much higher rate than do all of the other cities of its class but two, Chicago and San Francisco; 2—It uses

its central repair gangs for all current repairs, janitors making no repairs to buildings; 3—It makes no use of the time of janitors in summer on repair gangs. There is a fourth very fundamental reason, which is brought out in the section of the Survey Report dealing with the school buildings; the construction of some of the older buildings was so faulty as to necessitate a very large amount of expenditure for constantly recurring repairs to buildings.

In the same fashion we shall show in the discussion of expenditures for elementary schools and for secondary schools that the low expenditure for instruction is made up of a very low teaching cost coupled with a relatively higher expenditure for supervision and principalships, together with an average salary schedule and an abnormally large size of class.

3. Expenditures for Various Specific Kinds of Service. Expenditures for Administration, however, may be of either the educational or non-educational types; those for supervision and instruction are made up of salaries and expenses of supervisors, salaries and expenses of principals and their clerks, salaries of teachers, instructional supplies and textbooks; expenditures for operation of the plant are contributed to by the salaries of janitors, engineers and other operating employees, by fuel, and by operating supplies; those for maintenance of plant are for labor and materials used in repairs and replacement of equipment.

To analyze more completely the procedure of the Board of Education we present in Tables XXVII, XXVIII, and XXIX, and Diagram the expenditures, cost per pupil in average daily attendance, and rank in expenditure per pupil for each of the above specific kinds of service. The tables permit a minute analysis of distribution of the Board's expenditures among specific kinds of service and enable us to more definitely establish the present status of the school finance in St. Louis.

TABLE XXVII—EXPENDITURES FOR VARIOUS SPECIFIC KINDS OF EDUCATIONAL SERVICE. 21 CITIES, 1915*

City	Board of Education and Business Office	Superintendent's Office	Salaries of Principals	Salaries of Supervisors	Salaries of Teachers
1. Baltimore	$19,392	$35,487	$158,842	$ 8,716	$1,454,193
2. Boston	195,754	116,719	323,985	101,555	3,724,285
3. Buffalo	8,650	55,662	155,531	28,200	1,678,071
4. Chicago	320,065	204,312	979,320	35,588	9,218,824
5. Cincinnati	28,802	27,375	159,370	19,515	1,421,531
6. Cleveland	129,553	54,349	.....	46,093	2,750,825
7. Detroit	44,893	46,354	240,324	37,170	1,946,705
8. Indianapolis	41,164	22,867	71,304	50,366	910,294
9. Jersey City	9,470	31,915	112,024	15,807	973,970
10. Kansas City	56,885	31,597	111,079	21,767	1,184,123
11. Los Angeles	165,558	42,763	342,312	72,773	3,109,861
12. Milwaukee	27,116	34,518	172,788	34,729	1,454,614
13. Minneapolis	32,773	39,973	137,423	19,728	1,525,879
14. Newark	66,390	58,630	205,165	43,071	1,973,485
15. New Orleans	18,803	16,020	19,765	82,996	863,698
16. New York	473,321	895,110	3,414,538	57,704	27,375,213
17. Philadelphia	233,428	136,837	589,328	57,833	4,891,964
18. Pittsburg	150,098	77,664	291,988	100,452	2,130,856
19. Seattle	47,227	28,313	131,861	13,254	1,244,548
20. St. Louis	175,117	112,202	283,340	69,181	2,500,442
21. Washington	22,889	16,495	105,536	36,886	1,618,245

* Data from Annual Report of the U. S. Bureau of Education, Vol. 2, 1915.

TABLE XXVII—*Continued.*—EXPENDITURES FOR VARIOUS SPECIFIC KINDS OF EDUCATIONAL SERVICE. 21 CITIES, 1915*

City	Stationery and Supplies	Wages of Janitors	Fuel, Average for Years 1913-14-15	Water, Light and Power	Maintenance
1. Baltimore	$67,250	$152,802	$55,050	$20,838	$22,579
2. Boston	181,879	342,533	103,794	75,944	292,656
3. Buffalo	103,701	171,989	72,781	70,673	100,397
4. Chicago	187,764	1,196,527	361,159	140,510	425,686
5. Cincinnati	57,614	140,248	.....	35,827	108,617
6. Cleveland	118,049	304,831	89,232	42,786	267,557
7. Detroit	57,850	285,970	62,568	9,200	105,109
8. Indianapolis	62,119	94,142	38,482	21,374	72,547
9. Jersey City	131,576	99,066	41,027	17,991	72,788
10. Kansas City	41,827	104,195	57,127	24,144	46,124
11. Los Angeles	124,657	204,706	20,179	64,927	226,204
12. Milwaukee	81,129	121,531	50,794	80,888	172,122
13. Minneapolis	85,320	136,621	62,488	24,562	184,731
14. Newark	117,224	165,774	43,955	51,766	52,841
15. New Orleans	Included in Water	54,574	12,257	50,494	35,387
16. New York	1,898,974	1,682,931	599,844	84,907	1,313,074
17. Philadelphia	164,842	510,426	196,427	32,547	240,993
18. Pittsburg	124,569	301,763	89,902	91,474	271,780
19. Seattle	56,771	119,533	37,720	36,131	94,751
20. St. Louis	**136,856**	**276,846**	**60,032†**	**117,771**	**351,737**
21. Washington	85,130	134,174	69,770	23,698	136,163

* Data from Annual Report of the U. S. Bureau of Education, Vol. 2, 1915.
† 1912-14-15.

TABLE XXVIII.—EXPENDITURES PER PUPIL IN AVERAGE DAILY ATTENDANCE FOR VARIOUS SPECIFIC KINDS OF EDUCATIONAL SERVICE. 21 CITIES, 1915*

City	Board of Education and Business Offices	Superintendent's Office	Salaries of Principals	Salaries of Supervisors	Salaries of Teachers	Stationery and Supplies	Wages of Janitors	Fuel†	Water	Maintenance
1. Baltimore	$0.31	$0.57	$2.53	$0.14	$23.17	$1.07	$2.43	$0.92	$0.33	$0.36
2. Boston	1.97	1.18	3.26	1.02	37.51	1.83	3.45	1.07	0.77	2.95
3. Buffalo	0.17	1.11	3.10	0.56	33.44	2.07	3.43	1.50	1.41	2.00
4. Chicago	1.10	0.70	3.36	0.12	31.65	0.65	4.11	1.35	0.48	1.46
5. Cincinnati	0.72	0.68	3.97	0.49	35.38	1.43	3.49	....	0.89	2.70
6. Cleveland	1.64	0.69	....	0.58	34.88	1.50	3.86	1.19	0.54	3.39
7. Detroit	0.65	0.67	3.49	0.54	28.29	0.84	4.16	1.06	0.13	1.53
8. Indianapolis	1.57	0.87	2.72	1.92	34.77	2.37	3.59	1.36	0.82	2.77
9. Jersey City	0.28	0.94	3.29	0.46	28.63	3.87	2.91	1.25	0.53	2.14
10. Kansas City	1.64	0.91	3.20	0.63	34.08	1.20	3.00	1.74	0.70	1.33
11. Los Angeles	2.87	0.74	5.93	1.26	53.83	2.16	3.54	0.37	1.12	3.92
12. Milwaukee	0.56	0.71	3.56	0.72	30.03	1.67	2.51	1.04	1.67	3.55
13. Minneapolis	0.77	0.94	3.24	0.47	36.00	2.01	3.22	1.53	0.58	4.36
14. Newark	1.16	1.03	3.60	0.76	34.61	2.06	2.91	0.81	0.91	0.93
15. New Orleans	0.48	0.41	0.51	2.14	22.25	‡	1.41	0.35	1.30	0.91
16. New York	0.71	1.34	5.10	0.09	40.90	2.83	2.41	0.90	0.13	1.96
17. Philadelphia	1.28	0.76	3.25	0.32	26.91	0.89	2.81	1.15	0.18	1.33
18. Pittsburg	2.32	1.20	4.52	1.55	32.97	1.93	4.67	1.47	1.42	4.20
19. Seattle	1.54	0.93	4.31	0.43	40.64	1.85	3.90	1.32	1.18	3.09
20. St. Louis	2.21	1.42	3.58	0.87	31.59	1.73	3.50	0.83	1.86	4.44
21. Washington	0.49	0.35	2.24	0.78	34.42	1.81	2.85	1.49	0.50	2.89
Average	1.16	0.86	3.27	0.75	33.62	1.70	3.25	1.08	0.83	2.49

* Data from Annual Report of the U. S. Bureau of Education, Vol. 2, 1915.
† Average for the years 1913-14-15. ‡ Included in water, etc.

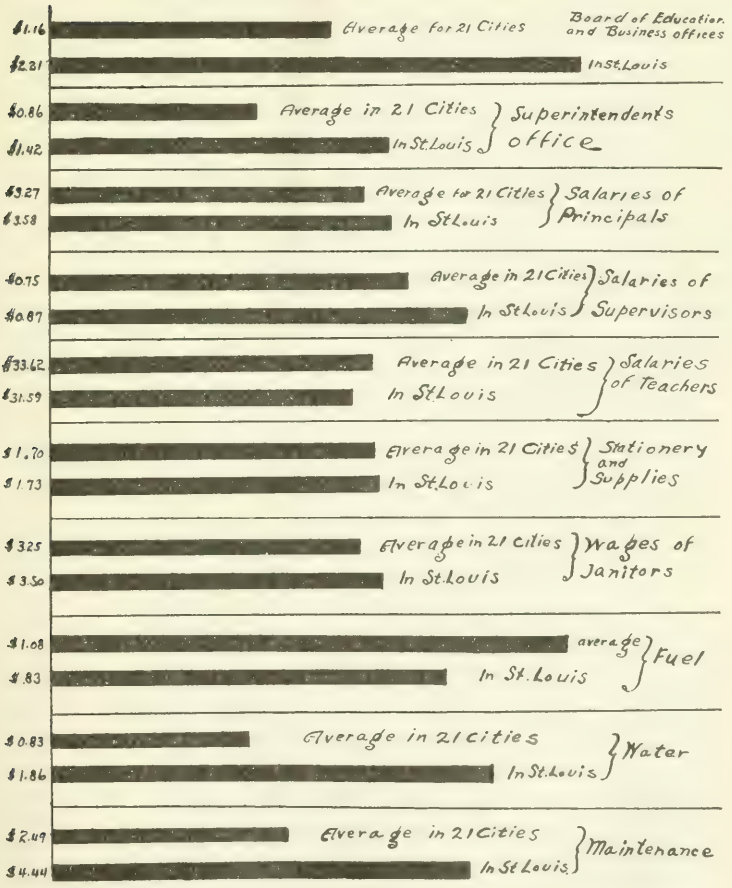
TABLE XXIX.—RANK OF 21 CITIES IN EXPENDITURES PER PUPIL IN AVERAGE DAILY ATTENDANCE FOR VARIOUS SPECIFIC KINDS OF EDUCATIONAL SERVICE. 1915*

Cities	Administration		Supervision and Instruction				Operation			
	Board of Education and Business Office	Superintendent's Office	Salaries of Supervisors	Salaries of Principals	Salaries of Teachers	Stationery and Supplies	Wages of Janitors	Fuel	Water Light and Power	Maintenance
1. Baltimore	19	19	18	19	20	17	19	15	18	21
2. Boston	4	4	12	5	4	10	10	12	11	8
3. Buffalo	21	5	16	12	12	5	11	3	4	13
4. Chicago	11	15	10	20	14	20	3	7	17	16
5. Cincinnati	13	17	5	14	6	15	9	..	9	11
6. Cleveland	5–6	16	..	11	7	14	5	10	14	6
7. Detroit	15	18	9	13	18	19	2	13	20–21	15
8. Indianapolis	7	11	17	2	8	3	6	6	10	10
9. Jersey City	20	7–8	11	16	17	1	14–15	9	15	12
10. Kansas City	5–6	10	15	10	11	16	13	1	12	17–18
11. Los Angeles	1	13	1	4	1	4	7	19	7	4
12. Milwaukee	16	14	8	9	16	13	18	14	2	5
13. Minneapolis	12	7–8	14	15	5	7	12	2	13	2
14. Newark	10	6	6	8	9	6	14–15	18	8	19
15. New Orleans	18	20	20	1	21	..	21	20	5	20
16. New York	14	2	2	21	2	2	20	16	20–21	14
17. Philadelphia	9	12	13	18	19	18	17	11	19	17–18
18. Pittsburg	2	3	3	3	13	8	1	5	3	3
19. Seattle	8	9	4	17	3	9	4	8	6	7
20. St. Louis	**3**	**1**	**7**	**6**	**15**	**12**	**8**	**17**	**1**	**1**
21. Washington	17	21	19	7	10	11	16	4	16	9

* Data from Annual Report of the U. S. Bureau of Education, Vol. 2, 1915.

DIAGRAM IX

EXPENDITURES per PUPIL IN AVERAGE DAILY ATTENDANCE for VARIOUS SPECIFIC KINDS of EDUCATIONAL SERVICE. 21 Cities, 1915.



a. *Administration.* We have shown that St. Louis spends a large amount of money on its administrative activities. It was suggested that this was probably true of both business and educational administration. Table XIX indicated clearly, however, that in 1910, 1911, and 1912, St. Louis gave an unusually large *proportion* of its "administration" money to business administration, ranking fourth, second, and third in that, and nineteenth, twenty-first, and twentieth in the *proportion* it devoted to educational administration. Two facts contribute to the seeming contradiction exhibited by Tables XIX and XXIX: 1—A large proportion of what is called "educational" administration in St. Louis is made up of salaries and expenses of the Hygiene and Attendance Departments. Some cities administer all health work under a Health Board entirely independent of the school administration. It is not known, therefore, how much this may be weighting St. Louis "educational" administration expense; 2—Since 1913 very large increases have been made to the staffs of these two Departments (the data of table XIX are for 1910-11-12); 3—The proportion of a Board's income devoted to certain activities is no criterion of what the actual amount spent per pupil for such purposes may be. In this case this is true, the Board spending more money absolutely on "educational" Administration when compared with the other cities in the group, at the same time it is giving a much smaller per cent of "administration" income to educational purposes.

Table XXIX thus confirms again the conclusions that St. Louis devotes an unusually large amount of money to its central administration. It forces the conclusion, moreover, that it is endowing the educational phases of this central organization as adequately as it is its business phases, as shown by the practices of other cities. It shows, when taken in connection with the later discussion of teachers' salaries, and clerical salaries, that the Board has tended to give more of its income to administrative and clerical salaries than to teachers' salaries.

b. *Supervision and Instruction.* In table XXIV it was shown that St. Louis stood thirteenth in twenty-one cities in the actual amount spent per pupil for supervision and instruction, while the data of Table XXV revealed that it devoted a smaller per cent of its current expenditures to that phase of school work than all but one other city in its class. However, a low expenditure for supervision and instruction may be contributed to by a high or low expenditure for salaries and expense of supervisors, salaries of principals, salaries of teachers, textbooks, educational supplies. Table XXIX shows that this is true for St. Louis. In its expenditures for salaries of supervisors and for salaries of principals the city is in the top third of the list, seventh and sixth respectively, at the same time that it falls in the bottom third in its expenditures for the salaries of *teachers.* Table XVI of Clark's "Financing the Public Schools" (Cleveland Survey Foundation), shows that out of fourteen cities St. Louis paid more to elementary school principals in 1914 than all but three other cities. Boston and Chicago pay slightly more than, while Newark pays the same annual salary as, St. Louis. This finding concerning supervisory and administrative salaries in the school buildings supplies added evidence of the Board's tendency to emphasize the various administrative aspects of school work in the city.

All educational supplies are given free to the pupils in St. Louis schools. To run the Supplies Department costs the city more than $200,000.00 a year. At times this has called for comments to the effect that it is a very expensive element of school administration. Tables XXVIII and XXIX provide the initial facts for the discussion of the efficiency and cost of handling school supplies in St. Louis. They show that the city is spending practically the average amount spent by the cities of the same class, and that it ranks twelfth in twenty-one cities in such actual expenditures per pupil. In the discussion of the efficiency and economy of supplies administration, in Part II it is shown that the cost of free edu-

cational supplies has not increased in St. Louis in the past five years; that in both 1912 and again in 1915, the city was getting its supplies at practically an "Average" cost; that its per pupil expenditure for text books has decreased during the past five years, and that a close study of the methods of buying, storing, delivering, and accounting for supplies, and the quantity and quality of materials which are provided, reveals a degree of efficiency that cities of this class may well check against as a tentative "standard." We have here a low "average" cost per pupil coupled with efficiency in procedure.

c. *Operation of the Plant.* Expenditures for the operation of the school plant are contributed to by: the salaries of janitors and other operating employees; janitoral supplies; fuel; water, light, and power. Tables XXVIII and XXIX show a fairly high cost for general operation (St. Louis ranks seventh in actual per pupil expenditure according to table XXIV and tenth in per cent of current expenditures devoted to "Operation," according to table XXV) breaks up into: 1—A fairly high cost for janitorial service; 2—A cost for fuel lower than any other city operating under similar climatic conditions; and 3—A cost for water, light, and power higher than for any other city of the class. Our later discussion, in Part II, shows, first—that a high cost for janitor service is contributed by an average wage higher than that of most other cities and by the fact that fewer class rooms are operated per janitor; second—That St. Louis buys its coal at a lower price than other cities operating under similar conditions and at the same time secures an excellent grade of coal and heats its buildings adequately; third—that an abnormally high cost for water, light and power (More than twice as large as the "average" of the group and six to ten times as large as the costs in several cities) is contributed to largely by an abnormally high city water rate, which has recently been made the subject of further increases; by instances of waste in particular buildings, which the comparative cost analysis of the

present Commissioner of School Buildings is revealing and which are being partially checked up; and by a cost for generation of light and power which should be investigated very carefully by the Buildings Department.

d. *Maintenance.* Tables XXVIII and XXIX merely restate the situation concerning the upkeep of buildings, the principal features of which have been already taken up and a more detailed discussion of which will be given in Part II.

Expenditure for specific types of service, such as those discussed above, have been believed by many to be open to considerable error in the collection, transcription, and reporting of school facts. To check to a certain extent the degree to which this affects our figures for 1915, from which Tables XXVIII and XXIX have been built up, the data for two years, 1914-15, have been ranked and are given in Table XXX. The data for only seventeen cities were available for all items. The ranks, according to the two sets of records, confirm the conclusions made above.

C.—THE RELATIVE EXTENT TO WHICH ST. LOUIS SUPPORTS DIFFERENT KINDS OF SCHOOLS

The income of a city school system has to be divided among various kinds of schools; day and evening schools, high and elementary schools, schools for special classes of feeble-minded pupils, schools for the deaf, industrial schools, normal training schools and classes. Table X has shown that a very small proportion of St. Louis' school revenue goes into evening schools,—ten cents per pupil in 1914-15, but that the attention that it devotes to this problem is comparable to that of the "average" city of the group.

1.—Expenditures for Elementary and Secondary Schools. Tables XXXI and XXXII show that St. Louis spends $113.72 per pupil on its secondary schools, more than all but one other

TABLE XXX.—COMPARISON OF RANKS OF 17 CITIES IN EXPENDITURE FOR VARIOUS SPECIFIC KINDS OF SERVICE IN TWO DIFFERENT YEARS, 1914* AND 1915**

City	Board of Education office		Superintendent's office		Salaries and Expenses of Supervisors		Salaries of Principals		Salaries of Teachers		Stationery, Supplies, etc.		Wages of Janitors		Fuel		Maintenance	
	1914-1915		1914-1915		1914-1915		1914-1915		1914-1915		1914-1915		1914-1915		1914-1915		1914-1915	
Baltimore	17	15	12	15	17	17	12	14	16	16	15	15	15	16	13	13	16	16
Boston	5	4	2	3	4	5	9	9	3	3	8	9	5	8	9	10	4	7
Buffalo	15	17	9	4	9	12	8	..	7	10	4	4	7	9	4	3	3	11
Cleveland	6	5-6	14	13	11	11	15	12	11	5	16	13	4	4	8	9	6	5
Detroit	12	11	17	14	8	13	5	7	9	15	11	16	2	2	10	11	11	12
Indianapolis . .	7	7	10	10	1	2	13	13	13	6	7	2	9	5	6	6	9	9
Jersey City . . .	13	16	4	6-7	13	15	7	8	12	14	10	1	14	12-13	11	8	12	10
Kansas City . .	4	5-6	3	9	12	10	3	11	6	9	13	14	13	11	2	1	14	13
Los Angeles . .	3	1	8	11	3	4	1	1	1	1	6	3	12	6	16	16	7	4
Milwaukee . . .	14	12	11	12	15	9	11	6	14	13	14	12	16	15	12	12	..	..
Minneapolis . .	10	10	15	6-7	10	14	10	10	4	4	3	6	8	10	1	2	5	2
Newark	8	9	6	5	7	8	4	4	5	7	5	5	10	12-13	14	15	15	14
New Orleans .	11	14	16	16	16	1	16	16	15	17	..	..	17	17	17	17	13	15
Pittsburgh....	1	2	1	2	2	3	2	2	8	11	1	7	1	1	5	5	2	3
Seattle	9	8	7	8	14	16	..	3	..	2	2	8	3	3	7	7	10	6
St. Louis	**2**	**3**	**5**	**1**	**5**	**6**	**6**	**5**	**10**	**12**	**9**	**11**	**6**	**7**	**15**	**14**	**1**	**1**
Washington . .	16	13	13	17	6	7	14	15	2	8	12	10	11	14	3	4	8	8

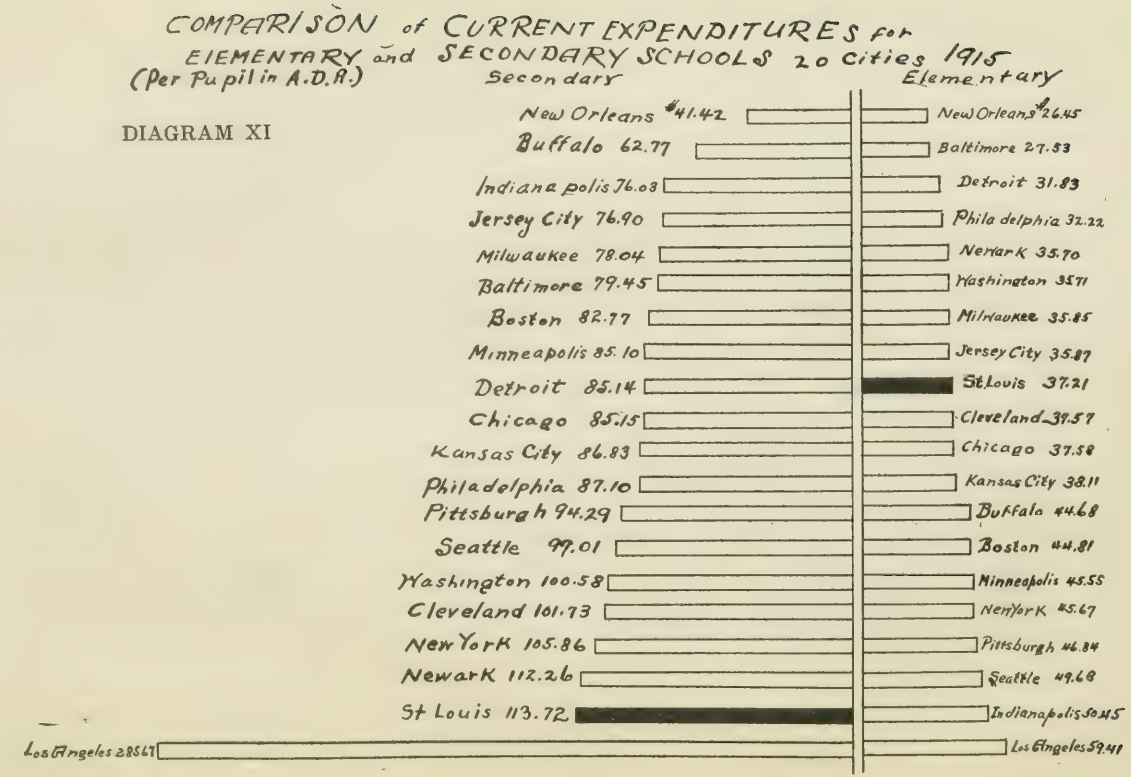
* Data for 1914 from Clark, "Financing the Public Schools."
** Data for 1915 from U. S. Commissioner of Education, Annual Report, 1915, Vol. II.

TABLE XXXI.—COMPARISON OF CURRENT EXPENDITURES FOR ELEMENTARY AND SECONDARY SCHOOLS. 20 CITIES, 1915*

City	Expenditures for Elementary Schools	Expenditures for Secondary Schools	Total Current Expenditures	Current Expenditure Per Pupil in Average Daily Attendance for		Rank of 20 Cities in Current Expenditure Per Pupil in Average Daily Attendance for	
				Elementary Schools	Secondary Schools	Elementary Schools	Secondary Schools
1. Baltimore.....	$ 1,600,073	$ 371,836	$ 1,971,909	$27.53	$ 79.45	19	15
2. Boston	3,812,289	1,221,668	5,033,957	44.81	82.77	7	14
3. Buffalo	2,049,371	270,274	2,319,645	44.68	62.77	8	19
4. Chicago	9,994,349	2,156,259	12,150,608	37.58	85.15	10	11
5. Cleveland	2,678,618	777,253	3,455,871	37.57	101.73	11	5
6. Detroit	1,954,289	631,654	2,585,943	31.83	85.14	18	12
7. Indianapolis ...	1,114,283	311,057	1,425,340	50.45	76.03	2	18
8. Jersey City ...	1,091,952	275,066	1,366,918	35.87	76.90	13	17
9. Kansas City ...	1,136,809	426,739	1,563,548	38.11	86.68	9	10
10. Los Angeles ...	2,882,423	2,643,289	5,525,712	59.41	285.67	1	1
11. Milwaukee	1,578,891	346,178	1,925,069	35.85	78.04	14	16
12. Minneapolis ..	1,621,878	576,366	2,198,244	45.55	85.10	6	13
13. Newark	1,891,252	452,961	2,344,213	35.70	112.26	16	3
14. New Orleans ..	937,358	139,591	1,076,949	26.45	41.42	20	20
15. New York	29,620,043	5,371,673	34,991,716	45.67	105.86	5	4
16. Philadelphia ..	5,414,943	1,195,522	6,610,465	32.22	87.10	17	9
17. Pittsburgh	2,732,012	595,742	3,327,754	46.84	94.29	4	8
19. St. Louis	1,267.176	496,341	1,763,517	49.68	97.01	3	7
18. Seattle	2,692,667	777,748	3,470,415	37.21	113.72	12	2
20. Washington ..	1,498,995	608,033	2,107,028	35.71	100.58	15	6
Average.....	.....	.....	.....	39.94	86.88	..	..

* Data from Annual Report of the U. S. Bureau of Education, Vol. 2, 1915.

DIAGRAM XI


COMPARISON of CURRENT EXPENDITURES for ELEMENTARY and SECONDARY SCHOOLS 20 Cities 1915
(Per Pupil in A.D.A.)
Secondary
Elementary
New Orleans $41.42
Buffalo 62.77
Indianapolis 76.03
Jersey City 76.90
Milwaukee 78.04
Baltimore 79.45
Boston 82.77
Minneapolis 85.10
Detroit 85.14
Chicago 85.15
Kansas City 86.83
Philadelphia 87.10
Pittsburgh 94.29
Seattle 97.01
Washington 100.58
Cleveland 101.73
New York 105.86
Newark 112.26
St Louis 113.72
Los Angeles 285.67
New Orleans $26.45
Baltimore 27.53
Detroit 31.83
Philadelphia 32.22
Newark 35.70
Washington 35.71
Milwaukee 35.85
Jersey City 35.87
St Louis 37.21
Cleveland 37.57
Chicago 37.58
Kansas City 38.11
Buffalo 44.68
Boston 44.81
Minneapolis 45.55
New York 45.67
Pittsburgh 46.84
Seattle 49.68
Indianapolis 50.45
Los Angeles 59.41

city in its class, Los Angeles. Comparison of these figures with the per pupil per year costs, compiled by the Auditor of the St. Louis Board of Education, will reveal certain slight

TABLE XXXII.—PER CENT OF CURRENT EXPENDITURES DEVOTED TO ELEMENTARY AND SECONDARY SCHOOLS. 20 CITIES, 1915*

City	Per cent of Total Current Expenditures Devoted to		Rank in per cent of Current Expenditures Devoted to		Ratio of Expenditures of Secondary to Elementary Schools
	Elementary Schools	Secondary Schools	Elementary Schools	Secondary Schools	
1. Baltimore	81.14	18.86	8	13	2.89
2. Boston	75.73	24.37	14	7	1.85
3. Buffalo	88.35	11.65	1	20	1.40
4. Chicago	82.25	17.75	4	17	2.27
5. Cleveland	77.51	22.49	13	8	2.71
6. Detroit	75.57	24.43	15	6	2.67
7. Indianapolis . .	78.18	21.82	11	10	1.31
8. Jersey City . .	79.88	20.12	10	11	2.14
9. Kansas City . .	72.71	27.29	17	4	2.27
10. Los Angeles . .	52.16	47.84	20	1	4.81
11. Milwaukee . . .	82.02	17.98	6	15	2.18
12. Minneapolis . .	73.78	26.22	16	5	1.87
13. Newark	80.68	19.32	9	12	3.15
14. New Orleans .	87.04	12.96	2	19	1.57
15. New York . . .	84.65	15.35	3	18	2.32
16. Philadelphia .	81.91	18.09	7	14	2.70
17. Pittsburgh	82.10	17.90	5	16	2.01
18. Seattle	71.86	28.14	18	3	1.95
19. St. Louis	**77.59**	**22.41**	**12**	**9**	**3.06**
20. Washington . .	71.14	28.86	19	2	2.82
Average.	78.81	21.19			2.393

* Data from Annual Report of the U. S. Bureau of Education, Vol. II, 1915.

differences. The figures of the Bureau of Education are used for *all* the cities, including St. Louis, on the ground that they are more fairly comparable. However, it can be seen that to use the Auditor's figures would not change the general conclusion of the analysis in this particular. Los Angeles, Newark, New York, and Cleveland spend very nearly the same amount per pupil as St. Louis. Liberality in the endowment of high school education is accompanied, however, by a relatively low expenditure per pupil for elementary education. For the latter St. Louis spends $37.21 per pupil, which is less than eleven of nineteen other cities in its class and is less than the average expenditure by cities of its type. To explain a high per pupil expenditure for high schools coupled with a low per pupil expenditure for elementary schools we need two types of facts: 1—The statistics in the number of pupils per teacher for both types of schools; 2—A comparative study of salaries paid in various cities for both kinds of schools.

A small per pupil expenditure may be due to either a large number of pupils per teacher, or to a low salary schedule. Inquiry shows that low elementary school expenditures in St. Louis are due to the first of these factors. First—St. Louis has a great many very large classes in its elementary schools. Table I of this section of the Survey report dealing with the use of class rooms (Hartwell's report) shows that there were 1269 classes with an enrollment of over forty, April 18, 1916. The most frequent class enrollments on this date were forty-five, forty-six, forty-seven, and forty-eight, there being one hundred and fifteen, one hundred and five, one hundred and twenty-eight, and one hundred and twenty-seven classes with these respective enrollments. Treating the problem from the comparative standpoint for 1915 Table XXXIII and Diagram show the number of pupils per teacher in the elementary schools for twenty-one cities. St. Louis is found to rank 20th, near the bottom of the list, with 37.6 pupils per teacher. Similar data are reported for

nineteen cities in 1914 by Clark in "Financing the Public Schools" (The Cleveland Foundation Survey). They confirm the data of Table XXXIII by showing that St. Louis placed a larger number of pupils under one teacher, 38.3, than all but one of these nineteen cities.

There has been no complete compilation of salary schedules for school teachers and principals since the publication of "The Tangible Rewards of Teaching" by the United States Bureau of Education, as Bulletin number 36, 1914. From this bulletin it is possible to get comparable distributions of annual salaries for only fourteen cities in our group. Clark, in the monograph above referred to, has compiled the average annual salaries of these fourteen cities, for elementary and secondary teachers and principals. His tables (pages 53, 57, and 59) show that St. Louis pays an annual elementary salary of $1032.00, somewhat above the average of the group, —$949.00.* It ranks fourth in fourteen cities. Further detailed distribution of annual salaries confirms the conclusion that its average elementary salary is somewhat above that of the average of the group. This conclusion but accentuates the effect of the very large size of class as the real cause of the low cost per pupil for elementary education.

The situation in St. Louis' high schools is different, however. First, Clark's table (Pages 53 and 58) shows that St. Louis is paying practically an "average" annual salary to high school teachers, but that it has a relatively small number of pupils taught per teacher. In 1914, St. Louis proved to rank 8th in 19 cities, with 19.2 pupils per teacher, compared with an average number of pupils per teacher of 20.8. Table XXXIV shows that in 1915 St. Louis ranked 13 in 21 cities with 21.1 pupils per high school teacher as compared with an

* The basis of calculation in Mr. Clark's table differs from that adopted in the Annual Reports of the Superintendent of Schools. Mr. Clark includes principals in his figures and other special teachers.

average for the group 21.3. Comparison of the salaries paid to teachers who get low salaries with those of the teachers who get high salaries shows that all levels of high school teaching in St. Louis are being paid about in conformance with the

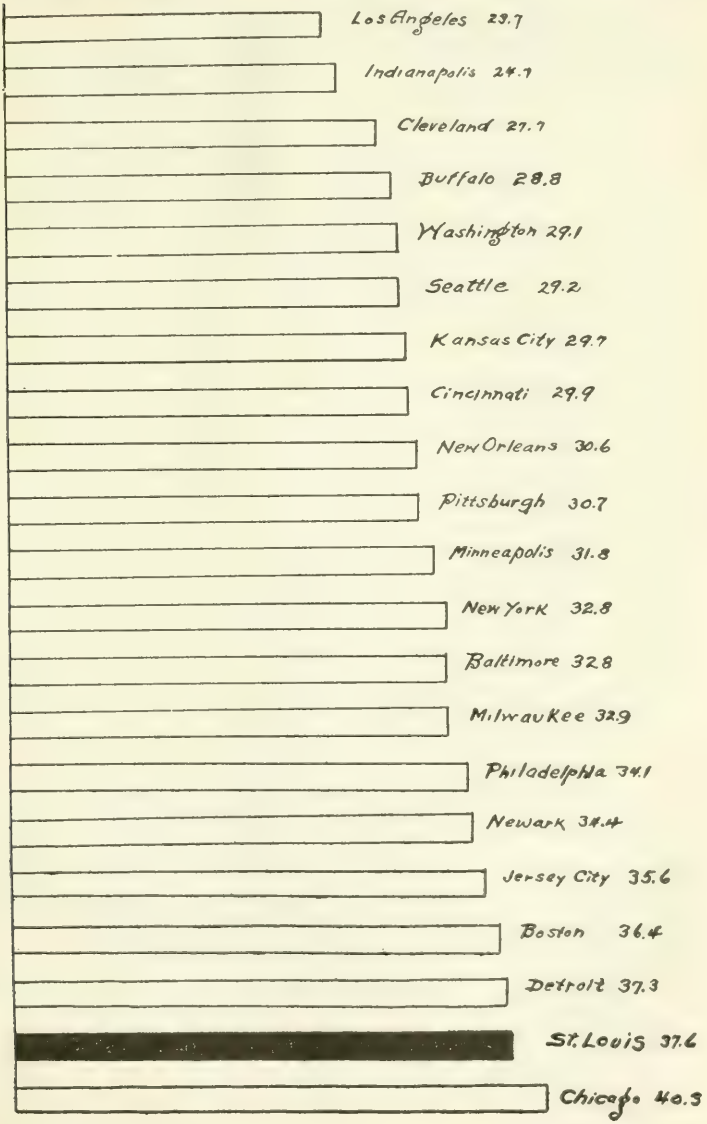
TABLE XXXIII.—NUMBER OF PUPILS PER TEACHER IN THE ELEMENTARY SCHOOLS OF 22 CITIES. (1915)*

City	Number of Teachers Employed	Number of Pupils in Average Daily Attendance	Number of Pupils per Teacher	Rank in 22 Cities
Baltimore	1770	58,114	32.8	12-13
Buffalo	1592	45,870	28.8	4
Boston	2339	85,074	36.4	18
Chicago	6588	265,932	40.3	21
Cincinnati	1206	36,059	29.9	8
Cleveland	2574	71,297	27.7	3
Detroit	1647	61,391	37.3	19
Indianapolis	894	22,085	24.70	2
Jersey City	855	30,438	35.6	17
Kansas City	1003	29,826	29.7	7
Los Angeles	2048	48,514	23.7	1
Milwaukee	1331	44,036	32.9	14
Minneapolis	1122	35,610	31.8	11
Newark	1530	52,983	34.4	16
New Orleans	1158	35,442	30.6	9
New York	19,770	648,546	32.8	12-13
Philadelphia	4927	168,043	34.1	15
Pittsburgh	1897	58,321	30.7	10
San Francisco		No Report		
Seattle	873	25,505	29.2	6
St. Louis	1923	72,366	37.6	20
Washington	1441	41,971	29.1	5
Average	....	.....	31.00	..

* Data from Annual Report of the United States Bureau of Education, Vol. II, 1915.

DIAGRAM XII

Number of Pupils per Teacher in the Elementary Schools of 21 Cities, 1915



"average" of its group. Five out of 13 other cities pay their high school teachers more than St. Louis does, namely: Newark, Washington, San Francisco, Boston and Chicago.

The above discussion establishes the fact that St. Louis has an abnormally large number of elementary pupils per teacher;

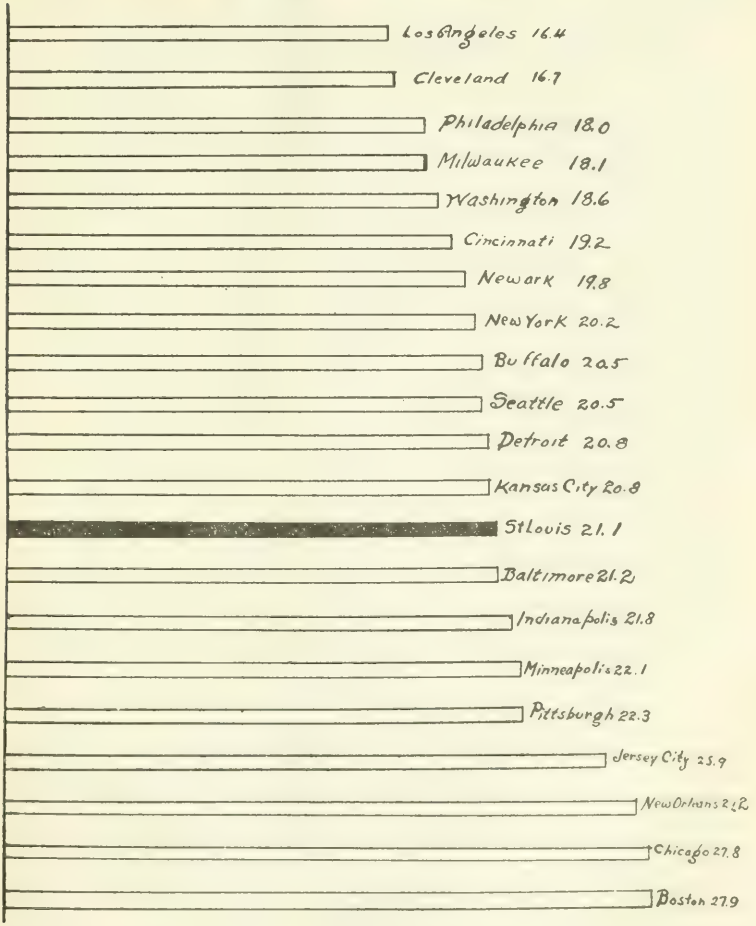
TABLE XXXIV.—NUMBER OF PUPILS PER TEACHER IN THE SECONDARY SCHOOLS OF 22 CITIES. (1915)*

City	Number of Teachers Employed	Number of Pupils in Average Daily Attendance	Number of Pupils per Teacher	Rank in 22 Cities
Baltimore	221	4,680	21.2	14
Buffalo	210	4,306	20.5	9-10
Boston	529	14,755	27.9	21
Chicago	911	25,323	27.8	20
Cincinnati	215	4,122	19.2	6
Cleveland	457	7,640	16.7	2
Detroit	357	7,419	20.8	11-12
Indianapolis	188	4,091	21.8	15
Jersey City	138	3,577	25.9	18
Kansas City	237	4,923	20.8	11-12
Los Angeles	565	9,253	16.4	1
Milwaukee	245	4,436	18.1	4
Minneapolis	306	6,773	22.1	16
Newark	204	4,035	19.8	7
New Orleans	124	3,370	27.2	19
New York	2515	50,745	20.2	8
Philadelphia	764	13,726	18.0	3
Pittsburgh	284	6,318	22.3	17
San Francisco		No Report		
Seattle	250	5,116	20.5	9-10
St. Louis	323	6,839	21.1	13
Washington	325	6,045	18.6	5
Average	....	.....	21.3	..

* Data from Annual Report of the United States Bureau of Education, Vol. II, 1915.

DIAGRAM XIII

NUMBER OF PUPILS PER TEACHER IN THE SECONDARY SCHOOLS OF 22 CITIES, 1915



that it pays considerably better than "average" salaries to its elementary teachers; that it has a relatively small size of class in its high schools and that it pays no more than an average salary to its secondary teachers.

2.—High School Costs in St. Louis. St. Louis has five white schools and one colored school. The Board has never adopted the policy of segregating certain subjects in particular high schools. Hence we find nearly every high school subject represented in the curriculum of each school. It will be worth while to inquire: First, What does it cost to teach the different high school subjects in St. Louis and how do these costs compare with those of other cities?—Second, How have these costs run during the past four years?—Third, How do the costs of these subjects, during the last four years, compare for the different high schools in the city?—Fourth, How do the average salaries paid in different departments compare with each other?

Tables XXXV and XXXVI supply the data from which we can answer certain of these questions. Table XXXV gives the average cost per 1,000 student hours for instruction in each of the subjects taught in St. Louis high schools, for each of the past four years, together with the average salaries paid in each department. Table XXXVI gives the same data, itemized for each of four white high schools and the colored high school for each of the past four years. These data have been compiled very carefully from the teachers' payrolls and the teachers' class cards for each year. These class cards give the enrollment in each class, taught by each teacher in each of the four years. From these the proportion of time of each teacher devoted by her to each department was computed. Salaries of teachers were prorated on this basis and the cost per 1,000 student hours was computed. All class periods have been transmuted into "clock-hours" of 60 minutes.

TABLE XXXV.—AVERAGE COST PER 1000 STUDENT HOURS FOR INSTRUCTION IN VARIOUS DEPARTMENTS OF ST. LOUIS HIGH SCHOOLS, TOGETHER WITH AVERAGE SALARIES PAID PER SEMESTER. DATA ITEMIZED FOR YEARS 1912-13 TO 1915-16 INCLUSIVE*

Department	1912-13		1913-14		1914-15		1915-16	
	Cost Per 1000 Student Hours	Average Salary Paid	Cost Per 1000 Student Hours	Average Salary Paid	Cost Per 1000 Student Hours	Average Salary Paid	Cost Per 1000 Student Hours	Average Salary paid per Semester
Botany	$ 60.88	$ 688.89	$ 53.36	$ 700.39	$ 52.96	$ 692.22	$ 57.03	$ 690.92
Chemistry . . .	98.24	896.67	93.32	918.33	100.32	953.33	113.16	940.00
Com. Sub.	66.52	809.20	62.56	658.38	60.80	657.51	63.93	720.30
Drawing	81.32	777.06	81.04	726.17	87.96	766.33	99.96	771.38
Dom. Sci.	66.12	610.00	74.68	642.50	71.60	676.94	84.27	703.33
English	68.48	779.23	69.36	757.01	66.92	763.02	66.42	758.89
Economics . . .	70.20	750.00	103.20	877.78	100.64	1010.00	79.53	787.50
French	97.88	781.67	103.08	800.00	116.96	872.78	123.27	736.25
German	63.60	717.50	66.60	675.83	65.88	693.83	71.43	703.96
Greek	383.04	958.33	401.68	983.33	410.84	990.00	363.87	900.00
History	74.92	833.75	76.24	781.37	77.96	838.94	80.61	824.96
Latin	74.64	843.55	81.56	811.50	82.44	805.03	82.15	779.54

TABLE XXXV—*Continued.*—AVERAGE COST PER 1000 STUDENT HOURS FOR INSTRUCTION IN VARIOUS DEPARTMENTS OF ST. LOUIS HIGH SCHOOLS, TOGETHER WITH AVERAGE SALARIES PAID PER SEMESTER. DATA ITEMIZED FOR YEARS 1912-13 TO 1915-16 INCLUSIVE*

Department	1912-13		1913-14		1914-15		1915-16	
	Cost Per 1000 Student Hours	Average Salary Paid	Cost Per 1000 Student Hours	Average Salary Paid	Cost Per 1000 Student Hours	Average Salary Paid	Cost Per 1000 Student Hours	Average Salary paid per Semester
Man. Train.	$ 100.68	$ 820.45	$ 98.88	$ 832.78	$ 97.40	$ 868.06	$ 107.49	$ 877.71
Mathematics .	61.92	757.20	66.04	764.05	66.48	782.33	64.86	754.21
Mech. Dr'w'g .	85.08	813.33	88.52	865.83	82.74	828.34	97.62	854.17
Physics	78.88	901.83	94.92	956.11	80.56	936.17	84.05	897.75
Physiogr.	88.64	780.00	86.59	771.67	75.68	770.00	91.59	802.50
Physiology ...	72.68	723.33	73.48	830.56	71.20	831.11	70.05	772.08
Psychology ...	57.00	760.00	106.80	876.67	89.08	845.00	84.09	814.17
Spanish	101.04	845.00	105.20	790.00	Only	for Cen	tral High	
Trigonom.	134.34	1005.00	115.98	870.00	115.00	.....	134.94	785.00
	Central and McKinley						Central, Soldan, Cleveland	

* Data compiled from Teachers' enrollment cards and payroll.

TABLE XXXVI.—COST PER 1000 STUDENT HOURS FOR INSTRUCTION IN VARIOUS DEPARTMENTS OF FOUR ST. LOUIS HIGH SCHOOLS, TOGETHER WITH AVERAGE SALARIES PAID. 1912-13 TO 1915-16 INCLUSIVE*

BOTANY

Schools	1912-13		1913-14		1914-15		1915-16	
	Cost Per 1000 Student Hours	Average Salary Paid	Cost Per 1000 Student Hours	Average Salary Paid	Cost Per 1000 Student Hours	Average Salary Paid	Cost Per 1000 Student Hours	Average Salary Paid
Central	$ 59.40	$ 700.00	$ 49.68	$ 720.00	$ 61.08	$ 686.67	$ 51.00	$ 705.00
McKinley	65.16	690.00	51.60	646.67	40.68	655.00	47.64	590.00
Soldan	58.08	676.67	58.80	732.50	57.12	735.00	64.56	712.00
Average of 3 White Schools	60.88	688.89	53.36	700.39	52.96	692.22	56.06	693.10
Sumner	26.40	490.00	36.84	560.00	32.76	590.00	. . . . .	. . . . .
Cleveland	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	64.92	756.67

CHEMISTRY

Central	$ 99.96	$ 845.00	$ 117.72	$ 885.00	$ 114.72	$ 935.00	$ 122.04	$ 890.00
McKinley	114.24	1000.00	82.80	1000.00	102.60	1000.00	121.20	1000.00
Soldan	80.52	845.00	79.44	870.00	83.64	925.00	101.40	1010.00
Average of 3 White Schools	98.24	896.67	93.32	918.33	100.32	953.33	101.26	927.08
Sumner	57.60	730.00	94.80	760.00	95.40	820.00	88.68	850.00
Cleveland	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	108.00	900.00

TABLE XXXVI—*Continued.*—COST PER 1000 STUDENT HOURS FOR INSTRUCTION IN VARIOUS DEPARTMENTS OF FOUR ST. LOUIS HIGH SCHOOLS, TOGETHER WITH AVERAGE SALARIES PAID. 1912-13 TO 1915-16 INCLUSIVE*

COMMERCIAL SUBJECTS

Schools	1912-13		1913-14		1914-15		1915-16	
	Cost Per 1000 Student Hours	Average Salary Paid	Cost Per 1000 Student Hours	Average Salary Paid	Cost Per 1000 Student Hours	Average Salary Paid	Cost Per 1000 Student Hours	Average Salary Paid
Central	$ 74.76	$ 972.50	$ 65.28	$ 739.44	$ 64.44	$ 764.44	$ 66.96	$ 715.33
McKinley . . .	59.04	704.00	60.24	679.23	58.32	676.67	66.84	712.22
Soldan	65.76	751.11	62.16	556.78	59.64	531.43	70.56	781.43
Average of 3 White Schools	66.52	809.20	62.56	658.38	60.80	657.51	63.93	720.30
Sumner	.....	.....	.....	.....	.....	.....	.....	.....
Cleveland	.....	.....	.....	.....	.....	.....	51.36	672.22

DRAWING

Central	$ 91.92	$ 897.00	$ 98.40	$ 795.00	$ 89.52	$ 775.00	$ 120.12	$ 797.50
McKinley . . .	76.68	666.67	73.08	697.50	78.36	740.00	88.68	690.00
Soldan	75.36	767.50	71.64	686.00	96.00	784.00	80.04	738.00
Average of 3 White Schools	81.32	777.06	81.04	726.17	87.96	756.33	99.96	771.38
Sumner	.....	.....	.....	.....	.....	.....	.....	.....
Cleveland	.....	.....	.....	.....	.....	.....	111.00	860.00

TABLE XXXVI—*Continued.*—COST PER 1000 STUDENT HOURS FOR INSTRUCTION IN VARIOUS DEPARTMENTS OF FOUR ST. LOUIS HIGH SCHOOLS, TOGETHER WITH AVERAGE SALARIES PAID. 1912-13 TO 1915-16 INCLUSIVE*

DOMESTIC SCIENCE

Schools	1912-13		1913-14		1914-15		1915-16	
	Cost Per 1000 Student Hours	Average Salary Paid	Cost Per 1000 Student Hours	Average Salary Paid	Cost Per 1000 Student Hours	Average Salary Paid	Cost Per 1000 Student Hours	Average Salary Paid
Central	$ 63.72	$ 560.00	$ 67.68	$ 575.00	$ 65.40	$ 605.00	$ 94.08	$ 665.00
McKinley	65.88	650.00	83.64	712.50	74.88	742.50	74.76	760.00
Soldan	68.76	620.00	72.72	640.00	74.52	683.33	83.88	713.33
Average of 3 White Schools	66.12	610.00	74.68	642.50	71.60	676.94	84.27	703.33
Sumner	.....	.....	.....	.....	72.60	575.00	62.64	605.00
Cleveland	.....	.....	.....	.....	.....	.....	84.36	675.00

ENGLISH

Central	$ 70.68	$ 845.00	$ 78.48	$ 795.71	$ 72.60	$ 816.43	$ 76.08	$ 811.43
McKinley	73.20	840.83	69.60	774.00	66.12	742.86	63.24	756.00
Soldan	61.56	651.87	60.00	701.33	62.04	729.76	59.28	722.35
Average of 3 White Schools	68.48	779.23	69.36	757.01	66.92	763.02	66.42	758.89
Sumner	37.56	570.00	48.48	585.00	36.12	530.00	40.20	545.71
Cleveland	.....	.....	.....	.....	.....	.....	67.08	745.78

TABLE XXXVI—*Continued.*—COST PER 1000 STUDENT HOURS FOR INSTRUCTION IN VARIOUS DEPARTMENTS OF FOUR ST. LOUIS HIGH SCHOOLS, TOGETHER WITH AVERAGE SALARIES PAID. 1912-13 TO 1915-16 INCLUSIVE*

ECONOMICS (CIVICS AND ETHICS)

Schools	1912-13		1913-14		1914-15		1915-16	
	Cost Per 1000 Student Hours	Average Salary Paid	Cost Per 1000 Student Hours	Average Salary Paid	Cost Per 1000 Student Hours	Average Salary Paid	Cost Per 1000 Student Hours	Average Salary Paid
Central	$ 62.88	$ 760.00	$ 75.84	$ 863.33	$ 79.20	$ 850.00	$ 90.84	$ 805.00
McKinley	108.60	1050.00	186.84	1090.00	147.96	1090.00	117.24	935.00
Soldan	39.12	440.00	46.92	680.00	74.76	1090.00	52.56	775.00
Average of 3 White Schools	70.20	750.00	103.20	877.78	100.64	1010.00	79.53	787.50
Sumner	30.29	690.00	140.04	560.00	204.76	820.00	132.84	620.00
Cleveland	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	57.48	635.00
FRENCH								
Central	$ 117.48	$ 840.00	$ 106.20	$ 810.00	$ 126.60	$ 863.33	$ 97.20	$ 633.00
McKinley	104.64	745.00	124.92	795.00	138.36	905.00	82.44	680.00
Soldan	71.52	760.00	78.12	795.00	85.92	850.00	70.80	722.00
Average of 3 White Schools	97.88	781.67	103.08	800.00	116.96	872.78	123.27	736.25
Sumner	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Cleveland	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	242.64	910.00

TABLE XXXVI—*Continued.*—COST PER 1000 STUDENT HOURS FOR INSTRUCTION IN VARIOUS DEPARTMENTS OF FOUR ST. LOUIS HIGH SCHOOLS, TOGETHER WITH AVERAGE SALARIES PAID. 1912-13 TO 1915-16 INCLUSIVE*

GERMAN

Schools	1912-13		1913-14		1914-15		1915-16	
	Cost Per 1000 Student Hours	Average Salary Paid	Cost Per 1000 Student Hours	Average Salary Paid	Cost Per 1000 Student Hours	Average Salary Paid	Cost Per 1000 Student Hours	Average Salary Paid
Central	$ 59.28	$ 881.00	$ 63.84	$ 700.00	$ 57.36	$ 594.00	$ 56.48	$ 682.50
McKinley	70.32	670.00	72.72	705.00	72.48	805.00	74.64	723.33
Soldan	61.20	601.50	63.24	622.50	67.80	682.50	70.44	727.50
Average of 3 White Schools	63.60	717.50	66.60	675.83	65.88	693.83	71.43	703.96
Sumner	92.16	760.00	58.08	790.00	70.32	670.00	67.20	730.00
Cleveland	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	74.16	682.50

GREEK

Central	$ 285.84	$ 955.00	$ 336.00	$ 955.00	$ 353.16	$ 970.00	$ 195.60	$ 870.00
McKinley	606.12	1020.00	561.84	1045.00	489.72	1000.00	666.72	1000.00
Soldan	257.16	900.00	307.20	950.00	389.64	1000.00	384.60	1000.00
Average of 3 White Schools	383.04	958.33	401.68	983.33	410.84	990.00	363.87	900.00
Sumner	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Cleveland	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	208.56	730.00

TABLE XXXVI—*Continued.*—COST PER 1000 STUDENT HOURS FOR INSTRUCTION IN VARIOUS DEPARTMENTS OF FOUR ST. LOUIS HIGH SCHOOLS, TOGETHER WITH AVERAGE SALARIES PAID. 1912-13 TO 1915-16 INCLUSIVE*

HISTORY

Schools	1912-13		1913-14		1914-15		1915-16	
	Cost Per 1000 Student Hours	Average Salary Paid	Cost Per 1000 Student Hours	Average Salary Paid	Cost Per 1000 Student Hours	Average Salary Paid	Cost Per 1000 Student Hours	Average Salary Paid
Central	$ 82.32	$ 911.25	$ 85.80	$ 855.00	$ 90.84	$ 877.50	$ 93.60	$ 897.50
McKinley	68.64	810.00	74.76	772.50	72.84	863.33	77.88	813.33
Soldan	73.80	780.00	68.16	716.67	70.20	776.00	67.44	754.00
Average of 3 White Schools	74.92	833.75	76.24	781.37	77.96	838.94	80.61	824.96
Sumner	51.60	525.00	57.36	605.00	.....	.....	51.72	650.00
Cleveland	.....	.....	.....	.....	.....	.....	83.52	835.00

LATIN

Central	$ 68.40	$ 906.00	$ 68.40	$ 742.00	$ 77.88	$ 731.67	$ 85.56	$ 754.83
McKinley	87.84	917.50	103.56	942.50	96.00	892.00	73.56	802.50
Soldan	67.68	707.14	72.72	750.00	73.44	791.43	76.20	797.50
Average of 3 White Schools	74.64	843.55	81.56	811.50	82.44	805.03	82.15	779.54
Sumner	55.20	520.00	46.68	604.00	46.20	605.00	69.24	635.00
Cleveland	.....	.....	.....	.....	.....	.....	92.28	763.33

TABLE XXXVI—*Continued.*—COST PER 1000 STUDENT HOURS FOR INSTRUCTION IN VARIOUS DEPARTMENTS OF FOUR ST. LOUIS HIGH SCHOOLS, TOGETHER WITH AVERAGE SALARIES PAID. 1912-13 TO 1915-16 INCLUSIVE*

MANUAL TRAINING

Schools	1912-13		1913-14		1914-15		1915-16	
	Cost Per 1000 Student Hours	Average Salary Paid	Cost Per 1000 Student Hours	Average Salary Paid	Cost Per 1000 Student Hours	Average Salary Paid	Cost Per 1000 Student Hours	Average Salary Paid
Central	$ 77.78	$ 734.67	$ 86.40	$ 775.00	$ 101.88	$ 897.50	$ 143.28	$ 925.00
McKinley	134.98	900.00	95.40	860.00	83.64	800.00	78.96	826.67
Soldan	89.28	826.67	114.84	863.33	106.68	906.67	106.32	872.50
Average of 3 White Schools	100.68	820.45	98.88	832.78	97.40	868.06	107.49	877.71
Sumner	.....	.....	.....	.....	.....	.....	.....	.....
Cleveland	.....	.....	.....	.....	.....	.....	101.40	886.67

MATHEMATICS

Central	$ 45.48	$ 775.73	$ 66.00	$ 734.00	$ 68.16	$ 791.54	$ 70.08	$ 827.00
McKinley	84.84	878.18	75.60	882.00	72.60	865.45	66.24	744.00
Soldan	55.44	617.70	56.52	676.15	58.68	690.00	63.60	713.33
Average of 3 White Schools	61.92	757.20	66.04	764.05	66.48	782.33	64.86	754.21
Sumner	47.16	655.00	49.56	677.50	39.24	577.50	44.88	594.00
Cleveland	.....	.....	.....	.....	.....	.....	59.52	732.50

TABLE XXXVI—*Continued.*—COST PER 1000 STUDENT HOURS FOR INSTRUCTION IN VARIOUS DEPARTMENTS OF FOUR ST. LOUIS HIGH SCHOOLS, TOGETHER WITH AVERAGE SALARIES PAID. 1912-13 TO 1915-16 INCLUSIVE*

MECHANICAL DRAWING

Schools	1912-13		1913-14		1914-15		1915-16	
	Cost Per 1000 Student Hours	Average Salary Paid	Cost Per 1000 Student Hours	Average Salary Paid	Cost Per 1000 Student Hours	Average Salary Paid	Cost Per 1000 Student Hours	Average Salary Paid
Central	$ 109.32	$ 875.00	$ 104.76	$ 925.00	.....	.....	$ 135.36	$ 880.00
McKinley	79.20	885.00	89.40	937.50	$ 89.64	$ 970.00	92.64	950.00
Soldan	66.72	680.00	71.40	735.00	.....	.....	65.40	716.66
Average of 3 White Schools	85.08	813.33	88.52	865.83	82.74	828.34	97.62	854.17
Sumner	.....	.....	.....	.....	.....	.....	.....	.....
Cleveland	.....	.....	.....	.....	.....	.....	97.08	870.00

PHYSICS

Central	$ 60.24	$ 855.00	$ 106.20	$ 895.00	$ 95.52	$ 885.00	$ 66.60	$ 917.50
McKinley	100.56	1030.00	103.32	1060.00	61.68	977.50	94.87	898.00
Soldan	75.84	847.50	75.24	913.33	84.48	946.00	80.04	874.00
Average of 3 White Schools	78.88	901.83	94.92	956.11	80.56	936.17	84.05	891.75
Sumner	93.84	900.00	70.20	855.00	98.76	910.00	66.12	745.00
Cleveland	.....	.....	.....	.....	.....	.....	94.68	877.50

TABLE XXXVI—*Continued.*—COST PER 1000 STUDENT HOURS FOR INSTRUCTION IN VARIOUS DEPARTMENTS OF FOUR ST. LOUIS HIGH SCHOOLS, TOGETHER WITH AVERAGE SALARIES PAID. 1912-13 TO 1915-16 INCLUSIVE*

PHYSIOGRAPHY

Schools	1912-13		1913-14		1914-15		1915-16	
	Cost Per 1000 Student Hours	Average Salary Paid	Cost Per 1000 Student Hours	Average Salary Paid	Cost Per 1000 Student Hours	Average Salary Paid	Cost Per 1000 Student Hours	Average Salary Paid
Central	$ 81.60	$ 510.00	$ 84.48	$ 760.00	$ 81.96	$ 820.00	$ 99.48	$ 850.00
McKinley	106.56	1150.00	96.58	825.00	57.44	730.00	72.00	760.00
Soldan	77.76	680.00	78.72	730.00	77.64	760.00	101.16	790.00
Average of 3 White Schools	88.64	780.00	86.59	771.67	75.68	770.00	91.59	802.50
Sumner	. . . . .	. . . . .	59.28	900.00	61.32	950.00	72.96	1000.00
Cleveland	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	93.72	820.00

PHYSIOLOGY

Central	$ 72.36	$ 805.00	$ 70.32	$ 820.00	$ 58.68	$ 716.67	$ 72.24	$ 835.00
McKinley	75.96	810.00	73.08	825.00	73.44	926.67	72.00	780.00
Soldan	69.72	810.00	77.04	846.67	81.48	850.00	76.92	843.33
Average of 3 White Schools	72.68	723.33	73.48	830.56	71.20	831.11	70.05	772.08
Sumner	. . . . .	. . . . .	64.92	900.00	69.96	676.67	37.32	560.00
Cleveland	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	59.04	630.00

TABLE XXXVI—*Continued.*—COST PER 1000 STUDENT HOURS FOR INSTRUCTION IN VARIOUS DEPARTMENTS OF FOUR ST. LOUIS HIGH SCHOOLS, TOGETHER WITH AVERAGE SALARIES PAID. 1912-13 TO 1915-16 INCLUSIVE*

PSYCHOLOGY

Schools	1912-13		1913-14		1914-15		1915-16	
	Cost Per 1000 Student Hours	Average Salary Paid	Cost Per 1000 Student Hours	Average Salary Paid	Cost Per 1000 Student Hours	Average Salary Paid	Cost Per 1000 Student Hours	Average Salary Paid
Central	$ 57.00	$ 760.00	$ 106.80	$ 790.00	.....	.....	.....	.....

SPANISH

Central	$ 101.64	$ 920.00	$ 118.56	$ 950.00	$ 100.32	$ 995.00	$ 82.68	$ 885.00
McKinley	109.92	805.00	111.00	820.00	94.32	820.00	89.40	775.00
Soldan	91.56	810.00	86.04	860.00	72.60	720.00	67.68	686.67
Average of 3 White Schools	101.04	845.00	105.20	876.67	89.08	845.00	84.09	814.17
Sumner	.....	.....	.....	.....	.....	.....	.....	.....
Cleveland	.....	.....	.....	.....	.....	.....	96.60	910.00

TRIGONOMETRY

Central	$ 89.16	$ 920.00	$ 113.76	$1090.00	.....	.....	$ 163.68	$ 955.00
McKinley	179.52	1090.00	.....	.....	.....	.....	.....	.....
Soldan	.....	.....	.....	.....	$ 67.44	$ 730.00	120.84	750.00
Average of 3 White Schools	134.34	1005.00	115.98	870.00	145.14	690.00	134.94	785.00
Sumner	.....	.....	118.20	650.00	222.84	650.00	.....	.....
Cleveland	.....	.....	.....	.....	.....	.....	149.04	820.00

* Data compiled from teachers' enrollment cards and payroll.

Note.—Above costs computed from the records of the second semester of each year.

TABLE XXXVII.—AVERAGE SIZE OF CLASS ENROLLED IN VARIOUS DEPARTMENTS OF FIVE ST. LOUIS HIGH SCHOOLS

1916

Department	Central	McKinley	Soldan	Sumner	Cleveland	Average
Year of opening.....	1893	1904	1909	....	1915	....
Botany	28	29.8	26.4	....	31.	28.8
Chemistry	17.5	19.8	23.90	19.2	20.	20.3
Commercial	25.2	22.1	22.7	....	25.8	24.
Drawing	16.1	18.7	23.3	....	17.4	18.9
Domestic Science	17.	24.2	20.7	19.3	19.2	20.3
English	27.4	28.9	28.5	26.8	27.3	27.9
Economics	32.5	18.5	29.5	8.	18.	24.6
French	15.9	16.5	22.5	....	7.5	15.6
German	23.5	23.3	25.	22.2	21.	23.2
Greek	7.	3.	5.2	....	6.	5.3
History	26.1	25.9	27.5	25.1	24.	25.9
Latin	23.8	23.2	24.	18.1	18.3	22.4
Manual Training	15.5	19.9	17.6	....	17.9	17.6
Mathematics	28.1	26.4	27.3	26.3	26.6	27.1
Mechanical Drawing ...	15.6	21.3	22.3	....	18.2	19.4
Physics	22.4	24.	27.3	26.4	22.7	24.1
Physiography	20.5	25.3	18.8	15.7	21.	21.4
Physiology	27.8	27.	27.1	30.	26.5	27.1
Spanish	21.3	20.8	21.4	....	18.2	20.6
Trigonometry	14.	....	17.	....	11.	14.
Average	27.02	22.03	22.9	....	19.88	22.96

What does it cost to teach the high school subjects in St. Louis? In 1915-16 it cost amounts ranging from $57 per 1000 student hours in Botany; $63 to $86 in Commercial Subjects and English; about $80 for History, Latin, Physics, Spanish and Domestic Science; about $100 to $125 for Manual Training and Drawing, Chemistry and French. It has cost practically $400 per 1000 student hours each year for the past four years to teach Greek to the high school pupils of St. Louis. This is from four to eight times the cost of teaching the other subjects. It is doubtless true that it should be possible for a pupil to secure instruction in Greek in St. Louis schools. With classes averaging 3 to 7 pupils, however, the practice of teaching Greek in *each* of the white high schools can hardly be justified.

A high cost of instruction can be accounted for by the presence of one or both of two factors—a large average salary paid, or an abnormally small average size of class. It was pointed out above that the St. Louis high school classes are smaller than the average in cities of its class—that it is to this extent increasing the opportunity for good instruction. Analysis of the size of class and annual salary by departments for 1914-15 in five high schools reveals great variations in both factors among departments of any one school and among the different schools of the city. Just as the cost of instruction varies from $57 to $400, so does the average size of class vary from 26 or 29 in mathematics, English and Science, to 17 or 18 in Manual Training, Drawing and French, and to 3 to 7 in Greek. (Table XXXVII gives the data.) In the case of Greek the situation is more striking in that an abnormally small class is combined with a higher average annual salary (above $1800) than is paid in nearly all other departments. It is recognized that it is not possible with certain elective subjects to keep the size of class absolutely uniform. It should be granted, however, that a condition of very small classes in certain subjects being conducted in *several* schools in the city should be corrected by offering instruction in these

subjects only in one or two particular schools. Within particular departments in the different high schools the size of class is very uniform, only a few striking variations being seen in the tables. With the exception of Greek, French and Trigonometry, the classes are fairly uniform in size. In providing a teaching staff for its high school classes the St. Louis Board of Education has shown better than average liberality. With the consolidation of the classes in the particular subjects mentioned the comparison of the distribution of subject costs in the various schools would not reveal any striking inequalities.

2. To what extent have instructional costs increased in St. Louis high schools during the past four years? Examination of the summary (Table XXXVI) shows that the departments of Drawing, Domestic Science, Economics and French have shown fairly large increases in the per pupil cost of instruction—20 to 30 per cent. Further analysis indicates that these increases in per pupil cost are caused only in part by corresponding increase in average salaries paid but that they are due to decreasing election of such courses by the student body. The remainder of the subjects show fairly constant costs, but slight increases being revealed. The better established subjects, English and Mathematics, have reached a point in standardizing the size of class and salary schedule (stability tenure) where the costs can be expected to recur regularly; 1000 student hours can be counted on to cost about $66 to $70 for either Mathematics or English in St. Louis high schools.

3. How do high school costs in St. Louis compare with those in cities of its class? Statistics are not available to answer that question. In general we may approximate it by comparing the salaries paid and the size of class. Judging from that, costs in St. Louis will be somewhat higher than the average for other cities. How they will vary by departments we have no means of knowing. It is to be hoped that cities will soon compute and report their instructional costs in both high schools and the grades. Data are available for 25 cities of the

Middle West, ranging in size from San Antonio and Grand Rapids at 125,000, to several small cities of less than 10,000. The costs for St. Louis for each department are from 15 to 25 per cent higher. These few data are all that are now available in this subject, however, and do not enable us to be critical of St. Louis' costs. We print the high school costs herewith to permit comparison of particular schools and different years within the St. Louis system and to aid in the standardization of high school costs generally.

The Cost of Normal Training in St. Louis. In common with other cities of its class, St. Louis operates a normal college for the training of teachers. This instruction fulfills four particular types of function in the system. 1. It trains prospective teachers for service in the St. Louis schools. This may be called its "regular" course work. 2. It trains teachers on the staff while in service by means of "extension" course work. 3. It trains teachers while in service by means of its summer course work. 4. Through it administrative and teaching contribute to certain supervisory functions. The important question of teacher training costs is one on which no comparative data have been collected and published. Within the city, however, it would be of definite value to establish, from the financial viewpoint, the following points:

1. To what extent does the Harris Teachers College contribute teachers to the teaching staff of the city schools? During a course of years what proportion of the teaching staff has received all or part of its training in this school? 2. What proportion of the teachers trained in this school have gone into service out of the city but somewhere in the state? out of the city and out of the state? 3. What does it cost to train teachers in city and state normal schools either in or outside of Missouri? 4. How much has the state contributed to the expense of training these prospective teachers? 5. What does it cost to train teachers in the Harris Teachers College for service in the St. Louis schools, classifying the types of work

given as regular work, winter extension work and summer work?

The statistics which might be reported are complicated by the fact that the instructors in Harris Teachers College give the winter extension courses without extra compensation. To divide their salaries as a cost over all of the work which they do would, therefore, fail to recognize the fact that the salaries are paid by the city for the service which is rendered in the training of the students in the college classes and in the summer classes. The winter extension work which is one of the most important contributions made by the college to the school system as a whole is at present provided so far as the regular instructors are concerned without cost to the city.

No effort will be made to compute details under these conditions. A brief table is presented showing the total expenditure of the institution for a period of years. The impressive fact shown in this table is that the expenditures have increased very slightly while the scope of work has been greatly increased and the influence of the institution greatly enlarged.

TABLE XXXVIII.—TOTAL EXPENDITURE OF HARRIS TEACHERS COLLEGE FOR A PERIOD OF YEARS

1911—12	$41,228.15
1912—13	42,718.17
1913—14	40,129.22
1914—15	42,248.57

Of the total amount expended for the maintenance of Harris Teachers College $10.000 ($10,246.25 for 1914-15) is due to the policy of the Board to pay juniors in the college $100 each for their services as practice teachers during their third semester's work. It is doubtful whether this policy of subsidizing the training of prospective teachers can be justified either by current practice or by local conditions. Certainly it is not the common practice of state or city normal training agencies. In St. Louis one-third of the total expenditure for

the regular work of the college goes to this service. It is the conclusion of the Survey staff that this subsidy might well be eliminated.

Summary of "Cost" Findings.

The outstanding facts on the cost of public education in St. Louis are summarized in Table XXXIX. Together with the detailed tables and discussion of the foregoing pages it summarizes the evidence concerning the statements made on page 1. 1. We have shown first that St. Louis is a relatively wealthy city, ranking sixth among 22 cities in per capita wealth. 2. That it spends less for school purposes per inhabitant and per $1000 of wealth than all but two other cities of its class. 3. That it gives a smaller proportion of its municipal money to schools than do 17 other cities of its class. 4. Its elementary classes, making up the vast majority of its school population, are abnormally large, larger than all but two other cities in the country. 5. It pays a higher average "elementary" salary than 8 out of 13 other cities of its class. 6. Its secondary classes are smaller than the average high school class in other large cities. 7. It pays a lower salary, however, to high school teachers than the average of its group. 8. On the other hand it pays higher salaries to administrative officers, janitors, and Board's mechanics (all "business" employees) than do other cities in its group. 9. It gives a relatively larger proportion of its financial support to "business" affairs than to educational affairs as shown by its per capita expenditure for all such purposes and by the per cent of its expenditures going to both kinds of purposes. 10. It is spending more money per pupil for administration and for upkeep of its plant than any other city of its class, and more for operation than all but six other cities; this reveals in a still more analytical fashion the emphasis on non-educational matters. 11. This emphasis is checked again by the fact that it devotes a larger per cent of its current expenditures to administration and upkeep than any other city of its class and a smaller per cent to supervision and instruction than all but one other

city; at the same time its expenditures for operation of plant are about "average" for its class. 12. Carrying the analysis deeper we find that St. Louis spends more money per pupil than nearly all other cities for the superintendent's offices, business offices, water, light, and power, and maintenance of plant; that it is in the top third of the group in its expenditures for salaries of supervision and principals and janitors; and that it is in the bottom third in its expenditures for teachers' salaries. 13. We have shown that the administration of its supplies is very efficient, standard quality supplies being provided at a very low per pupil expenditure. 14. It spends more money per pupil in its high schools than all but one other city at the same time that it is less than average in its attention to the needs of elementary education. 15. During the past seven years it has raised for school purposes the full legal limit of 6 mills on every dollar of assessable property. 16. In spite of this our tables and diagrams show that it has been forced to retrench on a building program during the past six years, the extension of which is absolutely necessary to the proper housing and instruction of its pupils. 17. In addition to this we find that it has spent more money than it has been able to raise from all sources in 10 of the past 18 years; furthermore its expenditures for current purposes are approaching dangerously near to the total revenue and it will be impossible to finance any permanent improvements out of the present 6 mill tax in the future.

The Future Revenue of the Board of Education. All of this points to two outstanding facts: 1. St. Louis needs a larger mill tax for school purposes to care adequately for its necessary expenditures of the next ten years. 2. It needs immediately more money to carry on its building program. It has been clearly established that it cannot finance this program out of its present revenue. The needs of the building situation are critical and should be satisfied at once by a considerable increase in the mill tax voted by the people of St. Louis. The present administration of school work in the city will justify the people in voting the increased revenue.

TABLE XXXIX.—SUMMARY OF THE RANKS OF ST. LOUIS AMONG THE CITIES OF ITS CLASS IN EXPENDITURES FOR VARIOUS TYPES OF SCHOOL ACTIVITIES

Rank in:	No. of Cities	Rank of St. Louis		
		Above Average	Average	Below Average
1. Wealth Per Inhabitant, 1913	22	6	..	..
2. Expenditures for All School Purposes Per Inhabitant, 1915	22	..	..	20
Expenditures for All School Purposes $1000 Wealth, 1915	22	..	..	20
Expenditures for All School Purposes $1000 Wealth, 1913	22	..	..	20
3. Per Cent of Gov'tal Cost Payments Devoted to Schools, 1913	22	..	..	18
4. Number of Pupils Taught Per Teacher (Elementary), 1915	22	..	..	20
Number of Pupils Taught Per Teacher (Secondary), 1915	22	..	13	..
5. Average Salary Paid to Elementary Teachers, 1914	14	4	..	..
Average Salary Paid to Secondary Teachers, 1914	14	..	6	..
Average Salary Paid to Elementary Principals	..	X	..	..
Average Salary Paid to Janitors and Board's Mechanics	..	X	..	..
Average Salary Paid to Administrative Officers	..	X	..	..
6. Expenditures Per Pupil for Business Purposes, 1915	21	3	..	..
Expenditures Per Pupil for Educational Purposes, 1915	21	..	13	..
7. Per Cent of Total Current Exp'tures to Business Purposes, 1915	22	3	..	..
Per Cent of Total Current Exp'tures to Educ. Purp., 1915	22	..	..	20
8. Per Cent of Total Administrat. Exp'tures to Bus. Purp., 1910	22	4	..	..
Per Cent of Total Administrat. Exp'tures to Educ. Purp., 1910	22	..	..	19
Per Cent of Total Administrat. Exp'tures to Bus. Purp., 1911	22	2	..	..
Per Cent of Total Administrat. Exp'tures to Educ. Purp., 1911	22	..	..	21
Per Cent of Total Administrat. Exp'tures to Bus. Purp., 1912	22	3	..	..
Per Cent of Total Administrat. Exp'tures to Educ. Purp., 1912	22	..	..	20

TABLE XXXIX—*Continued.*—SUMMARY OF THE RANKS OF ST. LOUIS AMONG THE CITIES OF ITS CLASS IN EXPENDITURES FOR VARIOUS TYPES OF SCHOOL ACTIVITIES

Rank in:	No. of Cities	Rank of St. Louis		
		Above Average	Average	Below Average
9. Expenditures Per Pupil for Administration, 1915	21	1	..	..
Expenditures Per Pupil for Supervision and Instruction, 1915.	21	..	..	13
Expenditures Per Pupil for Operation of Plant, 1915	21	7	..	..
Expenditures Per Pupil for Maintenance of Plant, 1915	21	1	..	..
10. Average Expenditures Per Pupil for Capital Outlay, 1901-03	21	..	9	..
1904-06	..	3	..	..
1907-09	..	5	..	..
1910-12	..	..	9	..
1913-15	..	..	..	17
11. Per Cent of Current Expenditures to: Administration, 1915	21	1	..	..
Supervision and Instruction	21	..	..	20
Operation of Plant	21	..	10	..
Maintenance of Plant	21	1	..	..
12. Expenditures Per Pupil for: Business Offices	21	3	..	..
Superintendent's Offices	..	1	..	..
Salaries of Supervisors	..	7	..	..
Salaries of Principals	..	6	..	..
Salaries of Teachers	..	..	..	15
Stationery and Supplies	..	..	..	12
Wages of Janitors	..	8	..	..
Fuel	..	..	..	17
Water, Light and Power	..	1	..	..
Maintenance	..	1	..	..
All	..	..	..	..
13. Expenditure Per Pupil for Elementary School Purposes	20	..	..	12
Expenditure Per Pupil for All Secondary School Purposes	20	2	..	..
14. Per Cent of Current Expen. Devoted to Elem. School Purposes	20	..	..	12
Per Cent of Current Expen. Devoted to Sec'dy School Purposes	20	..	9	..

Assuming that income and expenditures will increase at the rate at which they have during the past decade or more, what will be the relation between income and expenditure during the next ten years if the Board is forced to operate under the present tax of 6 mills? A very rough method of determining the answer to this question would be to project the development of the past into the future years. Let us do this by assuming that income and expenditure for various purposes will continue to increase first as they have during the past 17 years (complete comparative records are available during that period) and second as they have during the past decade.

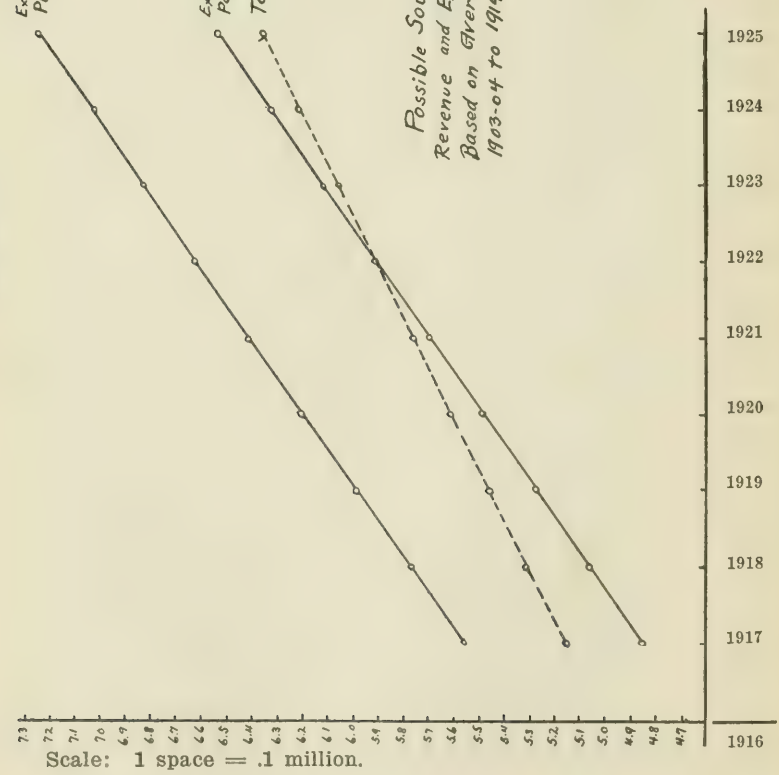
Table XL and Diagram XIV present pictures of the probable relation between income and expenditures. In this, no attempt has been made to compute accurately how much the 6 mill tax and each of the other sources will contribute to the income of the Board. Since it was found that the sources of income were very stable, the computation has been made by averaging the increase in total revenue during the course of past years. Again no account has been taken of the decreasing proportion of expenditures contributed by outlays during the past five years due to the artificial retrenchment of the Board's officers. Furthermore, averaging during a course of years by the "arithmetic average" does not take account of the continually increasing increment of revenue and expenditure each year over the preceding year. This has been partially revealed by averaging revenue and expenditure first for 17 years and then for 10 years. Thus the projection of revenue and expenditure into the future by this method underestimates the gravity of the situation rather than overestimates it.

That the needs are critical is evident from the diagram. The present 6 mill tax does no more than take care of the expenditures for current purposes during the next 6 years. No money can be spent for building purposes out of this present tax rate. In the meantime the building situation will become more critical.

TABLE XL.—POSSIBLE SOURCES AND AMOUNTS OF REVENUE AND EXPENDITURES FOR THE FUTURE

Years	Assessed Valuation of Property	Based on Average of Actual Yearly Increases From 1897-98 to 1914-15, Inclusive			Based on Average Yearly Increase From 1903-04 to 1914-15 Inclusive		
		Total School Revenue	Expenditures for:		Total School Revenue	Expenditures for:	
			Current Purposes	All Purposes		Current Purposes	All Purposes
1916	$648,000,000	$5,052,000	$4,566,000	$5,356,000	$5,010,000	$4,646,000	$5,366,000
1917	664,000,000	5,223,000	4,736,000	5,560,000	5,160,000	4,856,000	5,575,000
1918	680,000,000	5,394,000	4,906,000	5,764,000	5,310,000	5,066,000	5,784,000
1919	696,000,000	5,565,000	5,076,000	5,968,000	5,460,000	5,276,000	5,993,000
1920	712,000,000	5,736,000	5,246,000	6,172,000	5,610,000	5,486,000	6,202,000
1921	728,000,000	5,907,000	5,416,000	6,376,000	5,760,000	5,696,000	6,411,000
1922	744,000,000	6,078,000	5,586,000	6,580,000	5,910,000	5,906,000	6,620,000
1923	760,000,000	6,249,000	5,757,000	6,784,000	6,060,000	6,116,000	6,829,000
1924	776,000,000	6,420,000	5,926,000	6,988,000	6,210,000	6,326,000	7,038,000
1925	792,000,000	6,591,000	6,096,000	7,192,000	6,360,000	6,536,000	7,247,000

DIAGRAM XIV



Scale: 1 space = .1 million.

It seems clear that the Board should have the active support of the people of St. Louis with a large immediate addition to the mill tax. The other two large cities of Missouri, Kansas City and St. Joseph, have found that they cannot operate on the constitutional tax limits of 6 mills and 4 mills respectively. During the past six years the people of Kansas City and St. Joseph have voted (at biennial elections) additional funds for current purposes, and have at the same time authorized large bond issues for permanent improvements. In Kansas City, from 1910 to 1914, the people voted 2 mills additional for current purposes and 2 mills more for interest and sinking funds in connection with the bond issues, a total of 10 mills. For 1914-16 the people voted 4 mills additional for current purposes, and 2 mills more for sinking fund and interest, a total of 12 mills. In addition the people also authorized bond issues of $4,000,000 during the last four years for building purposes. It is interesting to note that Kansas City is already showing the effects of its policy of bonding the city for school buildings, in the fact that the Board, in planning for the next biennium, has been forced to levy 3 mills for interest and sinking fund. Last March the people voted 3 mills additional, giving a total assessment again of 12 mills for the next biennium. Thus it has continued to raise 10 to 12 mills on the dollar where St. Louis has been forced to finance its schools on 6 mills, finding itself unable to do so any longer, however.

In the same way the people of St. Joseph, at special biennial elections since 1910, have voted 4 mills for general purposes in addition to the 4 mills allowed them by the constitution (St. Joseph is less than 100,000 population and hence the Board can levy only 4 mills without special authority of the people). They have also authorized bond issues of $1,475,000 during the past ten years for buildings and grounds.

The first need of the Board of Education in St. Louis is to secure the authority of the people to raise money by taxation in excess of the constitutional limit of 6 mills. A very careful

canvass of its own situation will enable a determination of whether 8, 9 or 10 mills are needed. Beyond the needs of the immediate situation the Board of Education in St. Louis should look forward to a change in the constitutional limits of school taxation for cities of its class. It is clear that the present constitutional limits do not fit the St. Louis situation. It is also clear that it will be expensive and hampering for the Board to have to go to the people each year for authority to raise the tax limit beyond 6 mills. (It can of course resort to biennial elections and economize to that extent.) In its requests for a change in constitutional limit to school taxation it can point to the practice of other states containing very large cities. New York, for example, has no upper limit, Seattle has a limit of 10 mills; Indianapolis of 7.7 mills.

CHAPTER XVIII

THE BUSINESS MANAGEMENT OF THE PUBLIC SCHOOLS IN ST. LOUIS

The organization of the public school system of St. Louis, shown by Table XLI, is unique among the cities of its class. It is a five-headed system—five coordinate administrative officers reporting independently of each other to their respective committees of the Board, these latter being the agencies through which the Board transacts all of its business. The system is thus made up of five coordinate departments, varying in number of employees from the Auditing Department with 4 employees, the Finance Department with 9 employees, the Supplies Department with 30 employees, the Buildings Department with more than 500 employees, to the Instruction Department with more than 2700 employees. Each department executive has complete authority within his own department (subject to the Board and its respective committees), in the organization of his staff and the appointment of his assistants; in the formulation of departmental policies; and in the design of schemes of accounting and recording of school facts, educational and non-educational. There is no single formal *professional* agency empowered to review the conduct of the work of the system. Change of policy *can* come about within a department which may affect the work of another department, by duplicating or overlapping the work of another department without being checked up by a single officer or group of professional officers who bring in review all the implications of the change. The result is that changes do come about with this result in the carrying on of the departmental work in St. Louis. This will be pointed out in the succeeding pages.

We have pointed out the critical elements in the cost situation in St. Louis. The need for more money has been made clear. The possibility of economy in the administration of school work in the city has yet to be taken up. Part II will discuss the findings of the Survey staff in making a detailed examination of the work of each of the five departments.

TABLE XLI.—ORGANIZATION OF THE ST. LOUIS SCHOOL SYSTEM

BOARD OF EDUCATION—12 MEMBERS

Committee on Instruction

Instruction Department	Employees
Superintendent	1
Office	10
Hygiene Department	34
Attendance Department	18
Educational Museum	8
Teachers College	15
Assistant Superintendents	4
Day Schools:	
Supervision	39
High Schools	328
Elementary Schools	2001
Special Schools	64
Evening Schools:	
Supervision	2
High Schools	211
Grade Schools	53

Committee on School Buildings

Building Department	
Building Commissioner	1
General Office	6
Construction of Buildings	2
Maintenance and Operating Staff:	
Chief Engineer	1
Assistants	5
H. S. Engineers	12
Firemen, Oilers, Coalpassers	27
Superintendent of Electrical Work and Assistants	7
Plumbers	5
Gardeners	8–16
Superintendent of Repairs	1
Repair Shops	13–28
Painters	15–50
Carpenters	15–35
Laborers	2–7
Clerks	2
Supervisor of Janitors	1
H. S. Janitors	61
Elementary School Janitors	190
Scrubwomen	94
Board of Education Building	14

TABLE XLI—*Continued.*—ORGANIZATION OF THE ST. LOUIS SCHOOL SYSTEM

Committee on Auditing and Supplies

Supplies Department	Employees
Commissioner of Supplies	1
General Office	8
Delivery	7
Book Bindery	7
Stock Room	7
Auditing Department:	
Auditor	1
Office	3

Committee on Finance

Finance Department	
Secretary-Treasurer	1
Office	8
Law Department	1

THE DEPARTMENT OF SCHOOL BUILDINGS

It has been shown that the administrative organization of the St. Louis school system has been developed to such an extent that the city is spending more money on overhead costs than any other city of its class in the country. This, at the same time that it spends less money on instruction than all but two cities of its class. It has been indicated that the development of complex and expensive administrative machinery has been true of the Instruction Department as well as of the various business departments. However, there is no greater evidence of detailed differentiation of function and definition of duties, with a consequent large overhead salary outlay, than in the department of school buildings.

The present organization of the department of school buildings is shown by Diagram XV. It reveals itself as a completely centralized scheme of building department admin-

istration in which each of the activities peculiar to the department is carefully defined, named, and placed in charge of a special supervisory officer. The scheme was designed by the present Commissioner of School Buildings and put into operation after special investigation by a committee of the Board of Education, May 28, 1915. It carries out to the very utmost the general spirit of centralization and specific differentiation of school affairs evident throughout the St. Louis school system.

There are four principal kinds of affairs proper to a department of school buildings:

1. The design and construction of new buildings. 2. The operation of buildings. 3. The maintenance of buildings and grounds, and 4, the manipulation of office routine and distribution of accounts within the department. This portion of the survey report will deal with the activities of the department in that order.

A. The Design and Construction of New Buildings

The problem of school architecture and new buildings is more properly a subject of another section of this report. However, we may note the degree to which each supervisory officer in the department contributes to the problems of new plant, in connection with our discussion of the efficiency of the central organization of the system.

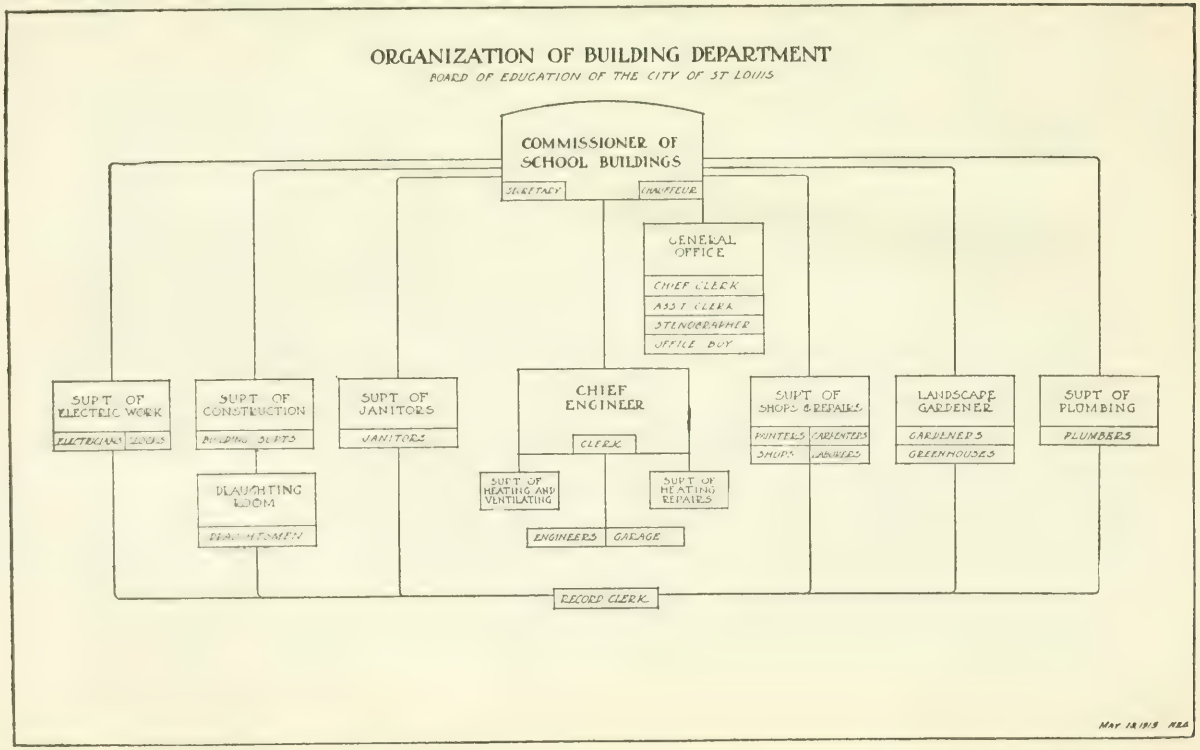
1. The Commissioner of Buildings personally plans the building from the architectural standpoint. (The present Commissioner has eliminated the annual appropriation for outside architect's services, included in past budgets. This was done in conformance with the legal opinion of the present attorney of the Board that the charter is to be construed in that way.)

2. The head draftsman and his assistants draw the plans.

DIAGRAM XV

Reorganization of the Building Department

At the close of the fiscal year 1914-1915 the Board, on recommendation of the Commissioner of School Buildings, reorganized the Building Department in accordance with the following diagram:



3. The Superintendent of Construction checks working drawings, and acts as the agent of inspection between the Commissioner and the contractor, appointing permanent inspectors of contract jobs and acting as final inspector himself. He also designs structural parts in new building schemes and coordinates the various portions of the specifications, worked out by the different building superintendents.

4. The Superintendent of Plumbing designs the plumbing, sewering and gas fitting, including specifications and plans.

5. The Chief Engineer designs heating and ventilating apparatus, specifications and plans; checks working drawings for contractors and manufacturers, tests all apparatus before giving it his final approval.

6. The Superintendent of Electrical Works designs new electric light power, clocks, bells and telephone installations. He lays out plans for new wiring systems, writing specifications, etc.

Thus, all designing and "overhead" work on new buildings is now done by the department's supervisory officers. Diagram XV impresses the reader with its elaborateness and leaves the impression that the department must be an expensive one. In Table XX we gave a detailed analysis of the cost of operating the office in charge of buildings in ten cities of St. Louis' class, for each of three years, 1910, 1911 and 1912. This table revealed St. Louis as spending two to four times as much per child in average daily attendance as the other cities of its group. The Board of Education has for years spent more money on the various departments of its central administration than other cities. Completely differentiated tests of school efficiency in the different cities are not available to enable us to determine accurately the wisdom of this heavy administrative expense.

It is necessary, however, to raise questions about an "overhead" unit charge in one city that runs four times as large as in another city of the same general size and conditions.

It will be said in objection that St. Louis includes in its office expenditures items of service which the other city does not; e. g., the cost of architect's services on new buildings. It should be remembered, however, that the statistics compiled in the census reports were gathered personally from the books of the systems by a personal agent of the Bureau. It may be assumed that the same men in compiling statistics from the books of these school systems would classify expenditures in closely the same way. Furthermore, since we have the data for three years any striking irregularities due to variation in practice in any one year would be accounted for. At any rate the statistical results of our table call for a detailed study of the efficiency with which the buildings department is operated. It may be true that St. Louis after all is nearer to the best standard practice than the other eight cities. Study may reveal a degree of efficiency that will quite justify this large overhead expense.

It is clear that there has been little actual increase in the overhead salary schedule with the definition of the present administrative scheme. This is shown by a table which gives the annual increases for ten years in office expenses, for the various departments in the system. The buildings department is practically no more expensive in "administration" than it was ten years ago. At the same time, it should be stressed that these building superintendents and administrative officers are doing work ordinarily done by "outside" architects and engineers. Comparative costs of doing this work under the two types of organization are not available, but it seems clear that the present scheme is saving the Board of Education considerable money in its construction of new buildings. The entire present scheme of organization spells centralization of control, careful definition of duties and delegation of work to responsible specialists who are trained for supervision of particular jobs. It typifies the carrying over into school business of sound principles of business efficiency. It carefully classifies duties to be performed and leaves each

particular officer responsible for the efficient carrying on of the duties of his department. In the opinion of the Survey staff the general organization of the buildings department is such as to tend to place the administration of school building business on a high professional plane. The present scheme leaves the Commissioner free to work out larger administrative policies and to develop the efficiency of the department to the highest possible degree.

B. The Operation of School Buildings

The department of buildings in its administrative scheme recognizes three specific types of work to be carried on by the operating staff:

1,—heating, lighting and ventilating (done by janitors and engineers reporting to the Chief Engineer); 2,—cleaning and care of properties (done by janitors and assistants reporting to the Supervisor of Janitors); 3,—care of grounds (done by the Landscape Gardener and his assistants).

The efficiency of school building operation may be said to depend on five factors:

1—The prescription of sound qualifications and the thorough working out of methods of examining and selecting engineers and janitors; in other words: the maintenance of a merit list for the appointment and promotion of janitors.

2—The training of the members of the force in the duties of the various positions, prior to placing them in responsible charge of buildings.

3—The size of the staff and the adequacy of the salary scale.

4—Supervision and inspection of their work.

5—The grading and promotion system.

The officers responsible for administering school business should be able to find their general procedure definitely marked out in the local school law. In St. Louis the meth-

ods of operating school buildings have been carefully defined by the Rules of the Board of Education and by the Rules of the buildings department on janitors. The Rules of the Board define in detail the classification of janitors, and prescribe the qualifications for various classes of service. The Commissioner of Buildings has supplemented these by a detailed statement of the "Rules and Regulations Governing Janitors and the Care of School Buildings." This is a sixteen page pamphlet which prescribes in excellent detail the duties and powers of janitors and principals in the care of school buildings. The administration has defined the duties of janitors very carefully and completely.

The Examination and Selection of Janitors. Contrary to usual school practice candidates for janitorships in St. Louis schools are subjected to a thorough physical and mental examination. This examination is given (theoretically whenever the "merit list" of successful applicants numbers less then ten, and actually about once in every year or two) by an examination commission consisting of the Commissioner of School Buildings and two school men, one of whom must be a principal. The examination is thorough, both on the physical and mental side and results in a "merit list" of janitors giving average percentage "grade" or marks on all candidates. As vacancies occur in the system they are filled by taking the available candidates in order of "grade" from that list. The procedure of examining and selecting janitors is such as to lead to efficiency in the operating of buildings.

The Training of Janitors. The rules and procedure of the department safeguard to the extreme the heating and care of buildings. For example, Rule 17 stipulates that "while heating and ventilating plant is in operation head janitor will devote his entire time to same and under no circumstances will he be permitted to do any work other than look after plant." The care for the safety and health of school children illustrated by this provision is present in the provisions for the placing of janitors. Janitors are not per-

mitted to take responsible charge of heating and ventilating plants without adequate training in the use of such. No person can become a head janitor without having served a sort of apprenticeship either in one of the high schools, in the Board of Education Building or as assistant to a head janitor. It is very generally the practice to give these men training in firing, operation of engine plant, and in cleaning in one of the large high school staffs. This is followed by appointment (after a probationary period of three months) as assistant janitor in an elementary school building. This assistantship may vary from a few weeks to several years. During this time the assistant janitor is NOT permitted to take *sole* charge of the heating plant. To provide for the necessary absence of head janitors, a reserve staff of substitute janitors, made up of both class A men (head janitors) and class B men (second janitors), is maintained at the Board of Education Administration Building. These men are sent out to fill temporary or permanent vacancies in the janitorial staff.

Careful examination of this phase of the procedure of operating buildings leads to the conclusion that the buildings department has planned and is administering the selection and training of janitors efficiently.

The Size of the Janitorial Staff and the Adequacy of the Salary Scale. The St. Louis schools are manned with a large janitorial staff. In the high schools the average number of rooms per caretaker is 4 to 5, in the elementary schools it is 6 to 8. Practice in American cities proves this to be very small and indicates that the building department is making it possible for its buildings to be thoroughly cared for. No evidence was found of overworked janitors. However, this large amount of janitor service coupled with a very liberal salary scale shows the operation of St. Louis school buildings to be expensive. It is believed that the janitorial staffs in the high schools are too large. It is found that they contain one janitor to 4 to 5 rooms as compared with one janitor to 6 to 8 rooms in the elementary schools.

Practice in other cities shows that a division of labor which assigns 6 to 8 rooms to a janitor is equitable. It is recommended that the janitorial staff in the high schools be adjusted to more closely approximate one janitor to every 7 or 8 rooms.

The Janitorial Salary Scale in St. Louis. In recent years the building departments of many city systems have standardized their salary scale for janitors. Various methods have been adopted, chief of which are the following: 1—to differentiate types of buildings, dependent on kind of heating and ventilating plant, and ages of buildings, classifying the salary scale in accordance with the classes of work to be done; 2—this is very generally supplemented by a scale computed on either one of two cases, (2a)—on a basis of the actual number of square feet of floor, window and sidewalls space to be cleaned, lawns to be cut, etc.; (2b)—on a basis of so much per room over and above stated minimum. The second method (2b) is admittedly much less accurate than the former. The foundation of the scale itself has to be constructed but seldom; it is a simple, practical problem in grouping buildings in terms of like service to be performed. Having once been worked out, the classification of buildings is relatively permanent and the salary scale is easily adjusted to it. This method of computing janitorial salaries results in paying for heating and cleaning buildings throughout the system in a way that is perfectly fair to janitors and results in the Board of Education receiving the largest amount of service for its money. It should be possible to determine the optimum cost of heating and cleaning school buildings with a considerable amount of refinement. Any method that takes account of *amount* and *kind* of service rendered may be said to be scientific and equitable to all parties concerned.

It cannot be said that the buildings department in St. Louis has a salary schedule. Investigation shows that janitors are paid without complete account being taken of the amount and kind of service rendered. Instead of standard-

izing kinds of buildings and kinds of service and paying the same for like amounts of service rendered, a policy has evidently been adopted of paying a standard amount per room for particular sizes of buildings. Tables XLII and XLIII show a very interesting condition. Table XLII gives the amount spent per room for janitorial service in each of the schools of the city, when buildings of the same size are together. It reveals striking facts:

1. The building department pays the same amount of money for operating buildings of the same number of rooms (not of the same size). Buildings of 24 rooms get approximately $95.00 per room; 20 rooms, $105-$115 per room; etc. This is not caused by paying head janitor or assistant janitors the same salary in all buildings of the same size, for our original data show that there is considerable variation in the annual salary paid to the same position in different buildings of the same size.

2. This seeming standardization takes no account of age of building, type or age of heating plant, sizes of rooms or hall and stair space, lawns, sidewalks, etc. It is shown later that it takes no account of *size* of buildings.

3. It costs three to four times as much to operate a high school building in St. Louis as it does to operate an elementary school building. This is also true of most city systems throughout the country and is merely indicative here of a tendency to increase at an unduly rapid rate the proportion of operating expense going into our secondary schools.

4. The buildings department has standardized the cost of operating elementary schools in such fashion that it costs no more, on the average, to run a school of 8-10 rooms than it does one of 2 rooms. 24-26 room buildings are being operated at a less cost per room than are all smaller buildings in the city.

This standardization of total amount spent per building may be thought to be a step in the right direction but, in the opinion of the survey staff, it needs to be supplemented by a more detailed scaling of salaries on a square foot basis.

TABLE XLII.—TOTAL AMOUNT OF JANITORIAL SALARIES PAID PER CLASS ROOM IN ST. LOUIS SCHOOL BUILDINGS OF VARIOUS NUMBER OF ROOMS

School	Number of Rooms	Total Salaries Paid Per Class Room	Total Number of Janitors
Soldan High	77	$233.08	14
Central High	69	240.60	12
Cleveland High	65	292.56	13
McKinley High	47	284.07	11
Sumner High	39	260.58	7
Yeatman High	36	336.60	10
Glasgow Elementary	27	84.31	4–2
Blair	26	85.24	3–2
Clinton	26	103.85	3–2
Franklin	26	119.71	4–3
Jefferson	26	103.56	4–2
Madison	26	87.55	3–2
Shaw	26	98.63	3
Adams	25	92.49	3–2
Ashland	25	94.89	3–2
Blow	25	88.65	3–2
Fanning	25	94.89	3–2
Irving	25	101.85	4–3
Clark	24	84.84	3–2
Clay	24	92.34	3–2
Columbia	24	92.34	3–2
Farragut	24	98.84	3–2
Hempstead	24	94.84	3–2
Hogden	24	94.84	3–2
Laclede	24	94.84	3–2
Lafayette	24	94.84	3–2
Marquette	24	94.84	3–2
Shepard	24	94.84	3–2
Sigel	24	94.84	3–2
Webster	24	94.84	3–2
Simmons	24	94.84	3–2
Cote Brilliante	24	92.34	3–2

TABLE XLII—*Continued.*—TOTAL AMOUNT OF JANITORIAL SALARIES PAID PER CLASS ROOM IN ST. LOUIS SCHOOL BUILDINGS OF VARIOUS NUMBER OF ROOMS

School	Number of Rooms	Total Salaries Paid Per Class Room	Total Number of Janitors
Henry	23	$114.46	4
Wyman	23	100.53	3
Ames	22	95.28	3
Bryan Hill	22	103.47	3
Field	22	98.01	3
Garfield	22	95.28	3
Marshall	22	98.01	3
Riddick	22	100.74	3
Banneker	22	103.46	3
Harrison	21	102.68	3
Humboldt	21	108.39	3
L'Ouverture	21	105.54	3
Arlington	20	112.61	3
Baden	20	113.81	3
Benton	20	115.61	3
Divoll	20	104.81	3
Dozier	20	116.81	3
Eliot	20	107.81	3
Emerson	20	107.81	3
Fremont	20	112.61	3
Froebel	20	115.61	3
Harney Heights	20	113.81	3
Jackson	20	107.81	3
Monroe	20	107.81	3
Sherman	20	107.81	3
Oak Hill	20	113.81	3
Walnut Park	20	113.81	3
Chouteau	19	107.18	3
Crow	19	107.18	3
Grant	19	110.33	3
Mann	19	116.64	3
Pestalozzi	19	113.49	3
Washington	19	113.49	3

TABLE XLII—*Continued.*—TOTAL AMOUNT OF JANITORIAL SALARIES PAID PER CLASS ROOM IN ST. LOUIS SCHOOL BUILDINGS OF VARIOUS NUMBER OF ROOMS

School	Number of Rooms	Total Salaries Paid Per Class Room	Total Number of Janitors
Dumas	18	$119.79	3–2
Bates	16	108.75	2
Gardenville	16	112.50	2
O'Fallon	16	91.88	2
Carr	15	98.00	2–1
Longfellow	15	98.00	2
Meramec	15	98.00	2–1
Pope	15	93.67	2
Rock Spring	15	98.00	2
Lowell	14	81.96	2–1
Lyon	14	105.00	2–1
Carondelet	12	100.63	2–1
Carr Lane	12	95.63	2–1
Charless	12	100.63	2–1
Douglas	12	95.63	2
Howard	12	100.63	2–1
Lincoln	12	95.63	2–1
Mt. Pleasant	12	100.63	2–1
Gratiot	11	81.82	1
Mullanphy	11	206.96	3–2
Roe	11	112.68	2
Dessalines	11	109.77	2
Delany	10	137.63	2
Clifton Heights	9	$154.67	2
Hamilton	9	106.67	1
Shenandoah	9	96.00	1
Penrose	9	93.33	1
Des Peres	8	105.00	1
Cottage Avenue	8	108.00	1
Wheatley	8	120.00	1
Gallaudet	6	120.00	1
Open Air, New	6	386.25	3

TABLE XLII—*Continued.*—TOTAL AMOUNT OF JANITORIAL SALARIES PAID PER CLASS ROOM IN ST. LOUIS SCHOOL BUILDINGS OF VARIOUS NUMBER OF ROOMS

School	Number of Rooms	Total Salaries Paid Per Class Room	Total Number of Janitors
Cupples	5	153.60	1
Kingshighway	5	120.00	1
Canterbury	4	144.00	1
Devonshire	4	144.00	1
Eads Ave. Tr.	4	210.00	1
Gravois M. T.	4	180.00	1
Garnett	4	144.00	1
Special No. 1	4	210.00	1
Special No. 7	4	150.00	1
Special No. 8	4	150.00	1
Special No. 11	4	150.00	1
Special No. 12	4	150.00	1
Special No. 9	3	200.00	1
Lindenwood	3	168.00	1
Special No. 2	2	300.00	1
Special No. 3	2	480.00	1
Special No. 4	2	300.00	1
Open Air (Old)	1	780.00	1

AVERAGE MONTHLY SALARIES PAID FOR VARIOUS CLASSES OF JANITORIAL SERVICE

High Schools	$68.30
Head Janitors in High Schools	92.14
Elementary Schools	76.32
Scrub Women	37.50

Table XLIII shows that paying the same total amount of money for buildings of the same number of rooms does not standardize the cost of operating buildings. 12 elementary buildings, ranging in size from 26 rooms to 12 rooms, have been taken at random, the only criterion of selection being that of each pair of buildings having the same number of rooms, one should be an old building and one a new one. The 12 buildings may be said to typify the condition existing throughout the system. It shows for example that it costs nearly three times as much to operate certain buildings of a given general type as it does to operate other buildings of the same type. This is true of both old and new buildings. In the Hodgen School we find 1 janitor to 4037.5 square feet of area in the building, in the Hempstead School 1 janitor to 7501 square feet, or one janitor to nearly 8000 square feet. In the *Franklin* School the Board is paying $99.68 per 1000 square feet for operating salaries. In the Blair School it pays $175.35 per 1000 square feet, *nearly* twice as much. The extreme variation in costs of janitors' salaries per 1000 square feet in these 12 schools is from 99.68 in the Franklin School to 252.37 in the Divoll School. It is believed that these are typical illustrations of a very evident lack of standardization in operating expense. It should be stated here that it is impossible to secure data on size of grounds and sidewalks, window area, etc., in order to analyze differences in cost more accurately. The illustrations given here are presented with a view to making concrete the situation concerning operating expense in St. Louis schools.

Inter-city Comparison of Janitors' Salary Schedules. There are many different methods in use for paying janitors of school buildings. Table XLIV presents in outline form the principal features of the salary schedules in use in 12 of the larger cities of the country. No two of the cities agree exactly in their procedure. The table indicates very clearly, however, that the larger American cities are making serious efforts to standardize operating costs of school buildings.

TABLE XLIII.—DATA CONCERNING OPERATING COSTS IN BUILDINGS

Building	Date	Class Rooms	Size of Rooms	Square Feet Area of Building	Number Janitors		Salaries	No. Sq. Ft. to each Janitor	Janitorial salaries paid per 1000 sq. ft. of bldg. area
					M.	W.			
Adams	1878	25	26x28	18,362	2	1	$2312.25	6,120	$ 125.92
Fanning	1907	25	24x32	22,265	2	1	2372.25	7,422	106.58
Blair	1882	26	25x28	12,649	2	1	2216.25	4,216	175.35
Franklin	1909	26	24x32	31,260	3	1	3116.25	4,815	99.68
Hodgen	1884	24	25x30	12,150	2	1	2276.25	4,037.5	188.16
Hempstead . . .	1907	24	24x32	22,503	2	1	2276.25	7,501	101.16
Divoll	1872	20	26x29	8,308	2	1	2096.25	2,769	252.37
Eliot	1898	20	26x33	12,879	2	1	2156.25	4,293	167.41
Harney Heights	1911	20	24x32	20,000	2	1	2276.25	6,666	113.81
Bates	1879	16	27x30	11,015	2		1740.00	5,507.5	157.89
Gardenville . . .	1907	16	24x32	14,400	2	1	2156.25	4,800	149.73
Lincoln	1867	12	26x28	7,207	1	1	1147.50	3,403	159.15
Mt. Pleasant . . .	1900	12	27x30	6,642	1	1	1207.50	3,314	181.85

Chicago, for example, computes salaries on very carefully worked out bases, heating and ventilating, cleaning, janitor work, sidewalks and yards and lawns, all on a square foot basis. Rochester, N. Y., operates on a square foot basis. Newark and several others distinguish costs of operating buildings having different types of heating plant. A common method is to pay so much for a minimum number of rooms, say 8 rooms, plus so much for each additional room. This discussion must be brief but we should emphasize the fact that St. Louis operating costs, due to large salaries and fairly heavily manned staffs, are high.

Efficiency of Janitorial Service. It seems clearly established that St. Louis is unusually liberal in its janitors' salary scale. Cost tables in *Part I* show that in 22 cities it stood 10th in the amount spent for operation per pupil in average daily attendance. It should be pointed out here that the position of the city would be even higher in the group if St. Louis had fewer pupils per building as in many cities. The above analysis of operating costs raises the question: Is the janitorial service in St. Louis schools efficient?

To answer this question two members of the Survey staff visited in all 40 elementary schools and 4 high schools. These elementary schools were selected in groups of 4 or 5 in such fashion as to include each geographical region of the city and all types of building from the various standpoints of age, size and heating plant. It is believed that the buildings visited are typical of the system. To abbreviate the discussion of the scope of the examination we may list the points covered by the visits as follows:

Routine duties of janitors; supervision and inspection of janitors in service; condition of janitors' quarters and supplies; general condition of building; relations between the janitors and principals; janitors' records and reports to department; current repairs made by janitors; summer work of janitors; janitors' responsibility for supervision of repair

Table XLIV SCHEDULES OF JANITORS IN 15 CITIES

CITY	Statement of Salary Schedules	Maximum and Minimum Salary	BASIS OF SALARIES PAID TO JANITORS — CARE OF MECHANICAL EQUIPMENT, Heating, ventilating: Cubical Contents Floor Area	FURNACES	BOILERS	ENGINES	[illegible]	JANITORIAL WORK IN BUILDINGS: CLASS ROOMS	FLOOR AREA	Care of laboratories and shops	EXTRA	CARE OF YARDS, LAWNS, etc.	Sidewalks	PORTABLES	SCHEDULE OF JANITORS
CHICAGO	clear		0 to 20,000 sq ft, 1320 20000 to 24000 · 1485		24000 to 80000 · 20 per C [illegible] Above 80,000 · 30 . . .			$20 per class room per year	$13 per 1000 ft for high schools	[illegible]	0.25 per year per 1000 ft for 5 cleanings	3 00 per 1000 ft annual	5 00 per 1000 ft annual	On Main Building Site 1st 125 per year each add'l 1.60 On Individual Site 1st 420 each add. .60 year	March 6, 1912.
PHILADELPHIA	indefinite	$216 to 5421	BASIS OF 1 GLASS SURFACE, 2 YARD AREA 3 SIDEWALK SURFACE, 4 NUMBER OF ROOMS												PERSONAL LETTER FROM SUPT OF BUILDINGS July 7, 1916
BALTIMORE	none given		JANITORS AVERAG SALARY 50 PER MONTH Janitresses 18 to 30 per month FIREMEN " " 60 " " ENGINEER'S " " 70 " "												Personal letter from Statistician July 7 1916
CLEVELAND	not clear		SALARY DEPENDS ON KIND OF HEATING PLANT					8 ROOM BLDG 1125 per room Above 8 rooms 5 00 per room			Extra [illegible] for [illegible] 1) Dom. Sc. Room 2) M. TRG " 3) Rooms used for Medical Purposes				Personal letter from Statistician July 7, 1916
DETROIT	Clear							STEAM HEAT 8 ROOM BUILDING 17 30 per room ABOVE 8 ROOMS 6.56 FURNACE HEAT 8 ROOM BUILD 10 51 ABOVE 8 ROOMS 4 98							MANUAL OF BUILDINGS 1915-16
NEWARK	clear				Boiler 17 25 each add. boiler 5 75		Each Fan 5 75	8 ROOM BUILDING $25 per room above 8 rooms 3 50 per room	ASSEMBLY ROOMS GYMNASIUMS $2 per C sq yds			$2 30 per C sq yards	$1 15 per C lin ft		59th Annual Report
JERSEY CITY	clear		BASE + (A + B + C + D + E + F + G – M) × N + I = COST OF OPERATING A SCHOOL BASE. Cost of Operation of smallest School Letters: Units of Service each unit except N + I = $44, or X 11 50 if ventilation is done by motor, [illegible] by steam engine					A. No of Units floor area at 1500 sq ft per unit B. " " Basement space C. " " for temporary buildings (each 2 units) D. " " outside Toilets F. " " fire escapes				F. Units of yard area (6,000 sq ft unit G. " Paved sidewalks M. " of all [illegible] allowed			Board Proceedings Jan 12 1910
LOUISVILLE	not clearly stated	480 to 624	Janitors with Engineers Duties get 720 to 960 Engineers get 1020 to 1200												Personal letter from Supt July 10, 1916
BOSTON	clear		Class A Buildings: 1-1000 sq ft .20 Total 2-1000 " " .20 [illegible] [illegible] above .19 per 1000 Class B Buildings: 1-1000 " 20 2-1000 " 20 [illegible] 6000 and above [illegible] per 1000 Class C Buildings: 1-1000 .60 2-1000 .60 –120 8000 & above 10 per 1000				Class A. 1 Plenum system of ventilation 2 Exhaust " " " Class B 1 [illegible] motor [illegible] 2 [illegible] with fans for Exhaust system of ventilation 3 Furnaces with fans for Plenum system of ventil. Class C. Stoves and furnaces. No other ventilation		Same for all Buildings 1st 1000 sq ft · 51 Total 2nd 1000 sq ft · 45 " 96 3rd 1000 sq ft · 40 " 136 4th 1000 sq ft · 36 " 172 5th 1000 sq ft 32 " 204 . . . . 33rd 1000 of sq ft · 17 " 761 over 33,000 sq ft · 16		Glass Surface .005 per sq ft for each washing	Lawns 3 00 per 1000 sq ft	2 00 per 1000 sq ft		Schedules adopted 1904 School Doc No 9 1912
KANSAS CITY	clear			Fan System · 10% of Regular Salary extra Low Pressure steam 5% of regular salary extra				By Rooms 1-7 · 30 per month for 1st 4 1 3 for each extra 8-15 · 40 for 1st 8 2 50 for each extra 16 and above · 50 for 1st 16 · 1 25 for each extra	Remark: Janitor is furnished rent allowed $20 per month for help in Buildgs of 9-15 rooms $40 " 16 and over						Rules and Regul June 1909 Letter from chief Engineer Aug 7 1916
NEW ORLEANS	no Schedule	Average salary 50 per mo						About 2 50 per room	Additional for halls basements and School Grounds						Letter from Secretary of Buildings Aug 7 1916
Rochester	clear		5000 to 130000 sq ft $510 to 3062 Determined by	1 1125 2 1500 3 1620 4 1700	1 [illegible] 2 [illegible] 3 1950 4 750	1 450 2 33 00 3 18 00 4 750	[illegible]	Remark In Rochester Salaries for all Janitors' work are paid directly to Jan who hires helpers (Same for Philadelphia and New York							
BUFFALO	definite	210 · 3350	High School Custodians · 1 50 " " Porters · 2 50 per day " " Floorwomen · 1 75 "					Compensation in Grade Buildings based on cleaning [illegible] plants, [illegible] Buildings, Pools and Lockers not definitely stated how is done							
SEATTLE	clear	77 147 50 per month	H. S. Engineers · 115 00 per mo " Firemen 72 00 per mo " Head Jan 90 " " " Assist 72 50 "					Furnace Steam 8. 77 9. 84 50 · 90 00 10. 92 00 97 50 over 10 · 5 00 per room				3 to 3 50 per month for large lawns		5 00 per month per portable	Letter from Chief Accountant Aug 10, 16

work; degree to which building department acquainted janitors with cost of operating their schools; part janitors take in ordering repairs and supplies; criticism of quality of coal; checking of coal deliveries; use of janitors on summer coal inspection; standardization and inspection of janitors' supplies; examination and appointment, and instruction of janitors in duties; stability of force; responsibility of janitors for building in regular school time and in summer; inspection of heating apparatus; standardization of amounts of coal and supplies to be used; use of janitors as messengers; degree to which rules of the Board are being adhered to.

These visits to schools (including as they did a study of the methods of handling educational supplies in the buildings) were made during the last two weeks of the last school year. It is not necessary to discuss here each of the details of this phase of the inspection. As a result of its careful examination the Survey staff is of the opinion that the buildings in the St. Louis schools are being very efficiently operated. In the main the liberality of expenditure may be justified by the excellent condition of the buildings and the efficiency with which the schools are operated. There are certain exceptional points about which criticisms to a certain degree adverse must be made. These include, repairs made by janitors; summer work of janitors; standardization of amount of janitors' supplies used; and supervision and inspection of janitors.

Repairs Made by Janitors. The Rules Concerning Janitors provide very definitely for the janitors to make minor repairs. The Survey made of 40 buildings showed that janitors do *not* make repairs to buildings above the basement. They paint the basements and make minor repairs about them; even the smallest repairs are made by a member of the Board's regular repair gang, sent out from the central repair shops. This is very expensive and it is evident that it contributes its part to making St. Louis spend more on maintenance of school buildings than any other city of its

class. (Table XXIV shows St. Louis to stand first in maintenance.) We shall discuss this fact more in detail later in the report.

Use of Janitors on Summer Repairs. It is common for city systems to use their janitors on repair gangs in the weeks of the summer when they are not cleaning their buildings ready for the September opening of school. In this way it is common for school systems to use their janitors in carpentry, glazing, painting, plumbing and cement gangs for at least five weeks. In the St. Louis schools this would amount to a saving of the time of about 150 men at an average salary of approximately $16.00 per week. Figuring the saving in repair cost on this low basis it would be possible to save the Board of Education $12,000 a year on this item alone. There would be actually a larger saving than this due to the fact that the salaries which are paid men doing this work now, are much higher than that received by janitors. It is not presumed in this report that all summer repairs (excluding contract work of course) can be made by janitor repair gangs. It is a fact, however, that much of the minor carpenter repairing can be efficiently done by such gangs. It will be said in objection that it is bad policy to "make mechanics out of janitors," also that the quality of service found in the janitorial staff does not warrant such a change. Should the latter be true then the salaries paid janitors are too high for the kind of work they are now doing. The only reply necessary is that other cities are doing it and doing it successfully.

Janitors' Supplies. At the present time a very inadequate overhead check is kept on the use and storage of janitors' supplies. It is possible to improve this condition very considerably by making this an important duty of the supervisor of janitors. The supply department has standardized the *kind* of educational and janitorial supplies used throughout the system. It has been unable as yet to get an adequate check on the *amount* of educational and janitors' supplies

used. This is the next step that ought to be taken. It *can* be handled very efficiently by the Supervisor of Janitors. He goes to each building in the system once each month. He is familiar with every aspect of the operating works. It is pointed out in the next section that his duties may be so reorganized as to include the standardization and supervision of janitorial supplies.

Supervision and Inspection of Janitors. Supervision implies careful observation and correction of present conditions, instruction in better methods, etc. The probationary and assistant janitors of the St. Louis system are supervised,—largely by the head janitors who are their immediate superior officers. The head janitors in turn are supervised to a certain extent by the chief engineer as regards the operation of heating and ventilating plant. The extent of this supervision is limited, consisting of one or two group meetings a year in which he discusses questions of heating and ventilating school buildings. Beyond this, we cannot find that the janitors are *supervised* in their work. They are *inspected* once each month by the Supervisor of Janitors, but the character of the oversight of their work is distinctly *inspectorial* and not supervisory. Once each month the Supervisor of Janitors goes into every room, hall, etc., in each elementary school in the St. Louis system. He notes the general condition of the cleanliness of the buildings and reports his findings on a blank form, one copy of which is filed in the office of the buildings department and another goes to the head janitor of the building. An examination was made by the Survey staff of these reports on 30 schools (selected at random and including all classes of building) for nine months in 1915-16. Out of a possible 1890 points for criticism there were but 45 of such. Fifteen of these 45 were requests to as many schools to remove paper boxes from the wardrobes. The others were of a miscellaneous routine nature. In reporting on the general condition of the buildings the word "good" is used 1336 times out of a possible 1350. Inspection

is thus seen to be largely a routine formal matter. The method employed prevents it from being anything else. It is suggested here that adequate inspection of operating service in a school system does not need to include a personal visit each month to every room, hall, etc., in the system. On the other hand it should certainly include a visit to the principal of each school under whose immediate authority in the particular school the janitor is. Principals say that they seldom see the Supervisor of Janitors. More active co-operation should be brought about between them in the future. A sampling of rooms, closets and halls will lead to as sound personal inspection as will all the rooms in the building. It was pointed out above that the janitorial supplies need checking. The Supervisor of Janitors is the proper officer to do it.

It was noted in a previous section that the salary schedule for janitors needs standardizing. It is suggested here that the best agent to take over this piece of necessary work is the Supervisor of Janitors. He knows intimately every angle of operating work in the St. Louis schools. Thorough study of the problems by this agent could lead to a sound standard schedule for the payment of operating employees.

Grading and Promoting of Janitors. A necessary part of the work of the Supervisor of Janitors is the examination, grading, and recommendation of janitors. At the present time the Supervisor has little or nothing to do with the former and the latter is largely a matter of routine. There should be worked out a sound method of grading and promoting janitors in service. This could be made a part of the work of the Supervisor of Janitors. It will be agreed that janitors should be advanced on two criteria: Merit and length of service. A department in which there are practically four hundred employees should carefully standardize its promotion methods so as to recognize both of these points. It is evident that beyond the careful preliminary examination given the men there is lack of adequate methods of grading and promoting janitors in service.

Summary of Conclusions and Recommendations on the Operation of Buildings

1. The local "school law," as shown by the Rules of the Board of Education and the Rules of the Building Department, controls efficiently the procedure in operating school buildings.

2. Entrance to janitorial service in St. Louis requires of the candidate the satisfaction of sound moral and legal qualifications and the passing of careful mental and physical examinations.

3. No person is allowed to become a head janitor in responsible charge of a building without having served an apprenticeship in the operation of heating and ventilating plants and in the cleaning and management of a building.

4. The schools of St. Louis are somewhat heavily manned. It would be difficult to cut down the staff in the elementary schools without injuring the service. The staffs in the high schools, however, are too large, one janitor being appointed for every 4 or 5 rooms. This compares unequitably with the elementary school staffs in the city and with practice in other cities. The high school staffs should be cut down in size.

5. There is no standard janitorial salary scale in St. Louis. The same amount and kind of service is paid for in different buildings at widely varying rates. It is recommended that a salary scale be worked out on a definite unit of work basis, e. g., the square foot basis. It is suggested that the design and maintenance of such a scale could be made a part of the work of the Supervisor of Janitors.

6. Examination of 40 elementary school buildings and 4 high schools leads to the conclusion that the heating and

cleaning of school buildings in St. Louis is efficiently done. The service rendered tends to justify the fairly large cost of operation which the department is incurring.

7. The efficiency of operation in buildings may be said to be due largely to the stability of the janitorial force, to the liberal salaries paid, and to the care with which janitors are selected, placed and trained in the service. It is doubtful if the present form of central supervision contributed to this efficiency of operation and it is suggested that the methods of inspection and supervision might well be revised. It is felt that this officer might well be more of a Supervisor and less of an Inspector. He could well take over the problem of standardizing and keeping up to date the salary schedule and the use of operating supplies.

8. Janitors in St. Louis' schools do not make minor repairs to their buildings. The Rules of the Board require them to do this and the practice of many American cities agrees with the Rules of the local Board. It is unduly expensive to have minor repairs made by central repair gangs. In the opinion of the Survey staff the Rules of the Board should be carried out in practice.

9. Many American cities use janitors to make smaller annual repairs in the summer. At least four to five weeks of the summer time of janitors is utilized in this way. In St. Louis all summer repairs are made by the Board's regular repair gangs and by contract work, the janitors being given the entire summer to clean their buildings (two men to a building in most cases), and put in their coal. It is suggested the present practice does not make efficient use of janitors' time and that present methods should be revised.

10. An inadequate check is kept at present on the quantity of operating supplies used. It is suggested that a method of standardizing the usage of operating supplies might be installed and maintained by the Supervisor of Janitors.

C.—The Maintenance of Public School Buildings and Grounds

Table XXIV shows that in 1915 St. Louis spent more money per pupil on the upkeep of its school buildings than any other city of its class. Analyses made for other years (1914 for example) show the same tendency—St. Louis ranks first in the list consistently. This could be due to several causes:

1. An unusually heavy "central" organization in charge of repairs. As the city system has grown larger and school revenues have increased, and problems of maintenance have become very complex, the tendency is for the Board's officers to differentiate kinds of work and build up an expensive administrative machine with high salaried supervisory officers. It is true that increased efficiency and greater protection to the community results from this thoroughly differentiated scheme of administration. But that it is expensive there can be no doubt. That St. Louis has built exactly this kind of scheme will be shown in the ensuing pages. The relative efficiency of the system will be taken up step by step.

2. The wage scale may be much higher in a particular city than in others. In St. Louis the Board's mechanics are paid in conformance with the uniform scales of the various labor unions of the city. The data for the other cities of the class are given in Table XLV.

3. Certain school systems build school furniture and equipment in their central repair shops. This tends to a confusion of classification of accounts. In a list of cities such as we have here it is possible that in some cities the maintenance "per capitas" are slightly incomparable for that reason. However, the buildings department in St. Louis has but recently developed the construction of furniture and equipment by its central repair shop men. The staff has been relatively small and the total expenditure for furniture and equipment contributed but little to the annual maintenance cost. It is believed that this factor plays but little part in St. Louis.

TABLE XLV.—WAGES PAID PER HOUR IN VARIOUS BUILDING TRADES IN ST. LOUIS AND IN 18 OTHER CITIES. 1915*

City	Plumbers	Steam Fitters	Gas Fitters	Carpenters	Painters	Electrical Workers
Baltimore	50	50	50	37½-43¾	31¼-37½	43¾
Boston	65	62½	60	57	55	60
Buffalo	56¼	56¼	56¼	45-50	43¾-46⅞	50
Chicago	75	75	75	70	70	75
Cincinnati	62½	62½	62½	60	55	60
Cleveland	68¾	62½	62½	55	50	68¾
Detroit	30-60	30-60	30-60	25-50	25-50	25-55
Indianapolis	62½	62½	62½	55	50	50
Kansas City	68¾	75	68¾	65	60	40-68¾
Milwaukee	62½	56¼	62½	50	50	50
Minneapolis	62½	56¼	56¼	50	50	50
New Orleans	56¼	56¼	37½	35-45	37½-40	50
New York	68¾	68¾	68¾	62½	50	60
Philadelphia	50	50	50	55	45	45
Pittsburgh	68¾	62½	68¾	62½	58⅛	62½
San Francisco	75	75	75	62½	62½	62½
Seattle	75	62½	62½	50-56¼	56¼	62½
St. Louis	**75**	**75**	**75**	**62½**	**62½**	**75**
Washington	56¼	57½	56¼	55	50	60
Average Wage	67	61.7	60.8	54.8	51.5	56.6

* Data obtained from Official Table of Union Scale of Wages compiled by E. M. Craig, Secretary of Builders Association, Chicago, Ill.

4. It has already been pointed out that janitors make no repairs to their buildings. Examination of the records of the office of the Superintendent of Shops and Repairs shows that repair men make even the smallest repairs, such as, hanging window cord, repairing locks to doors and windows, setting glass: even moving desks above the number of three! Full and detailed information on the procedure in other cities is not available. It is known however that it is quite common for American cities to require janitors to make both current and summer repairs. The latter is an especially large item of increased expenditure. It probably does contribute very considerably to St. Louis' large per capita expenditure for maintenance.

5. The large per capita expenditure for maintenance is probably due in part to a general spirit of liberality in the city and in the system. It should be said that in matters of supervision of job costs, the repair department is to be heartily commended for its efforts to keep them down.

Types of Maintenance Work in Public Schools. Repairs made to St. Louis public schools are of two principal types:

1. Current Repairs; all repairs made by the mechanics of the Board of Education, either of a routine nature or of an emergency nature.
2. Annual or Summer Repairs. These again are of two-fold nature:

   a.—repairs of more or less permanent nature; larger improvements or additions to buildings; done under contract by outside contractors.

   b.—smaller and more regularly recurring repairs to buildings such as varnishing and painting desks and equipment; setting glass; repairing black-boards, floors, stairways, etc., work of such a miscellaneous nature as to be done by mechanics of the Board.

Repair work in general is made up of four principal types: 1—carpentering, painting and glazing; 2—plumbing; 3—electrical work; 4—heating and ventilating work. These activities have been particularly differentiated during recent years and each now implies specific training. City school systems have very generally begun to differentiate the types of labor but not the supervision of them. St. Louis has done the latter also. The recent reorganization of the buildings department sends a supervisory officer over each particular branch of maintenance work. The administration and supervision of repair work is well shown by the following outline of the repair organization:

1. The Superintendent of Shops and Repairs. Has charge of carpenters, painters, glaziers, central repair shop and furniture and equipment construction. Reporting to him are:

a: Boss carpenter in immediate charge of central repair shop and carpenters. Staff in winter averages 15 men; in summer due to large amount of annual repair work 50 men.

b: Boss painter in charge of painting and glazing, both in central repair shop and in buildings. Permanent staff: 10 men, summer staff: 50 men.

2. Superintendent of Plumbing. In charge of current and annual plumbing repairs. Regular staff: 4 men; summer staff: 4 men.

3. Superintendent of Electrical work. In charge of all electrical repairs. Staff: 8 men.

4. Chief Engineer. In charge of heating and ventilating repairs. Work done by three men called:

Superintendent of Heating and Ventilating (Inspects heating and ventilating apparatus).

Superintendent of Heating Repairs. Repairs heating and ventilating apparatus.

Mechanic in charge of thermostats.

5. Landscape Gardener. In charge of "ground" work of school system.

I. *Current Repairs to Buildings.* Current repairs are of two *types:* 1—routine repairs, those which do not demand immediate treatment; 2—emergency repairs. To abbreviate the discussion of this phase of the building department's procedure we may list:

The Steps in the Process of Making Routine Repairs.—

1. Requisition on regular printed form is made out by the principal of the building and mailed to the Commissioner of Buildings for his personal approval.

2. Requisition goes to various building "Superintendents" in central office, *e. g.,* Superintendent of Shops and Repairs for carpenter work, Superintendent of Plumbing for plumbing repair work, etc. They classify the requests on the requisition which refer to their particular departments and indicate appropriate job cost sheets on which—

3. The stenographer transcribes the requests for repairs. Each job cost sheet thus contains work orders made by a particular department. For example, there is a job cost sheet for carpenters, another for painting and glazing, etc.

4. The repair jobs are next routed by the Superintendent (in the case of Plumbing repairs or Electrical work) and by the carpenter or painter boss in the case of those kinds of work. This routing is done at irregular intervals and work orders may lie in the carpenters' or painters' files for some days without being attended to. The attempt is made to route repair jobs economically. This at times necessitates delaying a repair for some time, after the requisition is received.

5. Workmen are sent out from central repair shops and offices in accordance with the routings and their movements through the day are controlled by telephone. Building charts are maintained by the supervisory officers showing at any time the location of the different workmen. There appears

to be a very close check at all times kept on Board's mechanics.

6. Daily time sheets are made out by each workman showing the jobs done, location and nature of each and time spent on each. These time sheets are filed in the offices.

II. *Heating and Ventilating Repairs.* The buildings department in St. Louis has recognized this type of maintenance as one of a particularly specialized nature. There are two specific tasks to be provided for:

1.—**Systematic Annual Inspection** of all heating and ventilating apparatus, which will lead to complete plans and specifications for summer repairs. This work is done by the person called "Superintendent of Heating and Ventilating" from January 1st to June 15th. This officer personally inspects all such apparatus in the system reporting to the Chief Engineer. He probably could better be styled "Inspector of Heating and Ventilating." From June 15th to September he is the regular inspector on the heating and ventilating repairs, contracted for as a result of his inspection. From September to January he is engaged in adjusting heating and ventilating apparatus prior to opening of the heating season, in conducting engineering tests for the Chief Engineer.

2.—Following the inspection that the Superintendent of Heating and Ventilating makes, the actual repair work is done by the person called Superintendent of Heating Repairs. Just as the above officer is really a heating and ventilating inspector so is this one the heating repair mechanic. From January 1st to June 15th he makes the necessary repairs to heating and ventilating apparatus. From June 15th to September he is chief coal inspector on summer deliveries and from September to January he is engaged on repairs again. These two men are paid $1800 a year, nearly the same salary as the other building superintendents receive. In view of the kind of work which these men are called upon

to do, it does not appear that the salary scale is too high. The organization of specialized kinds of service in this particular furnishes additional evidence of the careful attention that is being given to each aspect of the operation and maintenance of school buildings.

III. *The Care of School Grounds.* A further example of specialized service is the setting off of the care of school grounds under a special superior officer, who is co-ordinate with the building superintendents and reports immediately to the Commissioner of Buildings. This officer takes over the following building activities, many of which in other cities are left to the care of janitors or are handled by outside contract.

1. Maintenance of grounds of old buildings, renovating lawns, planting shrubs, flower beds, trimming trees, hedges, etc.
2. Landscaping new grounds; grading, sodding, planting, etc.
3. Growing of plants for decoration of school grounds.
4. Care of vacant lots owned by the Board and care of grounds and walks around portable buildings.
5. Repair of defective brick paving in school yards and concrete work in the system.
6. Resurfacing athletic fields.

Examination of the work of this officer leads to the conclusion that the city is getting due return for the money invested in this rather specialized department of building administration.

Promptness with Which Repairs Are Made in the Buildings. A controversial point in maintenance of school buildings is the relation between the department of repairs and the principals of buildings. It is a common complaint in school systems that repair departments treat repairs to school buildings as a purely business proposition, that

repairs are not made promptly and that the buildings department arbitrarily decides as to the disposition of school properties without due consultation with the education supervisory officers. Some of such complaints have been heard in the St. Louis schools. It is doubtless true that the repair organization does the work of its department thoroughly in terms of busines principles. Much of the economy and efficiency within the department is probably due to this attitude. This in turn may be said to account for the seeming delay in making current repairs to buildings. Economy in smaller repairs made by central repair men must depend upon routing of similar jobs in buildings located near each other. Single repairs of a routine nature cannot be economically made in a large school system. To enable the Survey staff to criticize justly the relative promptness and economy of making repairs in buildings the records of the building department were examined and a random tabulation was made comparing the requisitions for repairs with the records of completed jobs. (The records of the repair department enable such a tabulation to be made.)

For carpenters' repairs (fixing door checks, locks to doors and windows, desks, chairs, fences, etc.) typical job cost sheets indicated that elapsed time between the date of requisition and the date of completion of the repairs ranged from 5 to 50 days. Most of the jobs included in this tabulation were completed about 20-30 days after they were ordered. The length of time spent on the jobs varied from one-half an hour to 22 hours. Most of the jobs were of a routine nature and did not demand immediate attention. It is evident, however, that the principals and the repair organization evidently do not agree upon which are important repairs demanding prompt attention and which are routine or non-urgent repairs. A typical sampling of painters' job cost sheets indicate that the painting and glazing repairs are made relatively promptly. It is common to find repairs completed within a week after date of requisition.

From a careful study of the conditions under which the department of buildings operates in this large city system it is the conclusion of the Survey staff that the maintenance of buildings is carried on efficiently.

Summary of Conclusions and Recommendations on Maintenance of Buildings.

1. The buildings department of the St. Louis school system has carefully differentiated the supervision and inspection of repairs and general upkeep to buildings and grounds. The duties of various officers are clearly distinguished and adequate supervision is provided for all aspects of the work.

2. The supervisory salary scale is liberal but not too much so. The "paper" organization of the department in giving the impression of a top heavy administration is somewhat deceptive.

3. The salary scale for Board's mechanics is controlled by labor union conditions in the city. That it is higher than in 17 other cities in the class shows that this item contributes a considerable portion of a comparatively large unit expenditure for maintenance.

4. Although the Rules of the Board require it, the janitors make almost no current repairs to buildings. The practice of certain American cities suggests that this is a source of extravagance in maintenance.

5. A considerable saving could be made annually by using janitors on summer repair gangs requiring semi-skilled labor.

6. The routine of making repairs has been carefully standardized and appears to make for efficiency in the promptness and quality of work with which repairs are made. It is believed that this is largely due to the thoroughly differentiated system of administration and supervision.

7. There is adequate inspection and supervision of the conditions of heating and ventilating machinery and of its manipulation by engineers and janitors. An apparently heavy supervisory staff is justified by this fact.

D. Accounting and Clerical Work of the Department of School Buildings

Differentiation of departmental organization rapidly multiplies the routine clerical duties of the department and increases the cost accounting problems. With the setting up of many specialized officers in the central offices Boards of Education in large city systems recognize the need for differentiating clerical and accounting service. Not only does the number of clerks tend to become large in a rapidily developing central administration, but the salaries paid are apt to be out of proportion to the training required for service. In large cities this is in part due to relatively great permanence of tenure.

It has been pointed out previously in this report that the offices of the Board of Education of St. Louis are very expensive as judged by the standard practice of other city systems. Especially is this true of the buildings officers. This has developed to the point that there are now eight clerks in the building offices, distributed as follows:

1. The chief clerk in charge of the general office.
2. The secretary to the Comissioner of Buildings.
3. The chief clerk's stenographer and clerk.
4 and 5. Two clerks in the office of the Superintendent of Shops and Repairs.
6. Clerk to the chief engineer.
7. Record clerk.
8. Office boy in the general office.

The work done by this staff is of two principal types: 1—the routine manipulation of clerical work; 2—professional cost accounting.

I. Routine Office Work in the Department of Buildings Includes:

1. Routine necessary in ordering repairs and carrying them through completion. Typing work orders, and recording such; transmitting to proper officers.

2. Figuring time and material sheets for all shop and repair work and distributing charges against proper accounts and schools.

3. Preparing payrolls of various repair men and other employees of the department.

4. Ordering supplies from outside companies for repair work to buildings and grounds.

5. Ordering supplies by requisition from the Supply Department.

6. Handling permits for use of buildings.

7. Filing records essential to each phase of work carried on by the building department. These include:

(a)—Janitors' file of applications, and permanent records and grade cards on janitors; (b)—reports of supervisor of janitors; (c)—requisitions for repair work; (d)—job cost sheets; (e)—contracts for repairs and for new buildings; (f)—correspondence by schools pertaining to various activities of the department; (g)—outside correspondence; (h)—unpaid bills.

8. Making up monthly reports of Building Commissioner and of the Building Committee of the Board of Education. These are partly dependent on the professional work of distributing costs. At present they consist largely of the compilation of statistics.

9. Initiation and prosecution of all building contracts of the Board of Education.

Blueprinting plans and typing specifications, preparation of certificates for payment; tabulation of bids, etc.

II. Professional Activities: Cost Accounting in the Building Department

A first step to the improvement of business service in public school management is the installation of an adequate cost accounting system. Somewhere in the business division of the school system's administration it should be possible to find an agency for the computation and distribution of costs. Thorough analytical studies of unit costs for particular activities will provide a preliminary means of diagnosing sources of extravagance and will lead to the development of sound efficiency throughout the system. We shall discuss later in connection with accounting and auditing the question of the proper placing and organizing of the accounting bureau. For the purposes of this section of the report we shall discuss the types of cost accounting necessary to the proper carrying on of the buildings department and will take up later the appropriateness of having these functions in each of the four departments of the business organization.

Each of the four principal phases of activity in the buildings department has its problems of cost accounting, viz., 1—various types of cost in connection with the construction of new buildings; 2—costs of operating buildings; 3—costs of repairing buildings; 4—administration or overhead costs. In more detail these are seen to include, omitting any reference to construction costs (considered in another section of the Survey report):

A. Operating Costs.—1. Janitorial service: cost of cleaning and heating various buildings in the system; cost analysis will lead to the most equitable standardization of operating salaries and to the largest amount of service return. Costs could be computed per room, per pupil or on a foot basis. The data are available for computation of such costs in St. Louis' system but to date the buidings department has not made use of them.

2. Fuel costs: may be computed per room, per pupil, or on a foot basis. These data could be made available and costs computed resulting in detailed analysis of heating costs. To the present time the department has not analyzed its heating costs by buildings.

3. Water, light and power costs: may be computed in terms of standard units, (K. W. H. and cubic feet for example), for various buildings in the system. A very good beginning has been made in the Commissioner's office, the costs for water, light and power having been computed for each of the buildings in the system. These in turn have been followed up by checking up the management of these items in particular buildings where costs are high. Nothing reveals the "diagnosis" value of cost accounting better than does a comparative table like these tables on water and light costs by buildings. It is a necessary step if the central office wishes to run its plant economically.

4. Comparative budgetary analyses may be made annually covering each "account" or "appropriation" given the department. These should be historical in character covering the immediately preceding three or four years. In this phase of department procedure the buildings department is to be commended again. The Commissioner's recent budgetary work included a three-year historical statement of the various appropriations given his department. This indicates marked economies in several particulars. Furthermore, it permits intelligent analysis of particular appropriations and directs attention to tendencies within the department which may need study and explanation.

B. Maintenance Costs: Job Costs of Repairs. A vast majority of both summer and current repairs recur either annually or periodically throughout the year. In every school system the unit costs of such recurring jobs should be carefully computed and classified according to types of work involved. They are very necessary elements in the construction of a sound maintenance budget. From

TABLE XLVI.—RELATION BETWEEN ANNUAL BUDGETS AND EXPENDITURES IN VARIOUS SCHOOL DEPARTMENTS IN ST. LOUIS. 1911-12 TO 1914-15, INCLUSIVE*

Department	Year	Amount Appropriated	Amount Spent	Bal. Returned to General Fund
Attorney	1912-13	$ 5,700.00	$ 4,500.00	$ 1,200.00
	1913-14	2,900.00	2,825.00	75.00
	1914-15	2,700.00	2,603.75	96.25
	1915-16	2,700.00	2,686.31	13.69
Auditing	1912-13	5,910.00	5,892.79	17.21
	1913-14	6,456.00	6,455.37	.63
	1914-15	6,997.70	6,848.31	149.39
	1915-16	9,044.50	9,038.14	6.36
Building	1912-13	1,550,297.63	1,341,776.57	208,521.06
	1913-14	1,336,158.19	1,126,492.92	209,665.27
	1914-15	1,748,091.05	1,558,207.54	189,883.51
	1915-16	1,604,457.78	1,449,864.37	154,593.41
Finance	1912-13	132,800.00	109,528.68	23,271.32
	1913-14	277,459.50	214,117.57	63,341.93
	1914-15	179,264.50	118,049.82	61,214.68
	1915-16	226,436.87	149,006.29	77,430.58
Instruction	1912-13	2,566,370.00	2,506,953.41	59,416.59
	1913-14	2,676,956.31	2,616,850.52	60,105.79
	1914-15	2,848,690.00	2,774,412.19	74,277.81
	1915-16	3,022,520.00	2,985,158.45	37,361.55
Supply	1912-13	330,741.06	295,319.16	35,421.90
	1913-14	324,025.22	299,037.39	24,987.83
	1914-15	367,163.60	343,835.15	23,328.45
	1915-16	390,200.00	351,876.92	38,323.08

* Data compiled from Official Proceedings of Board of Education of St. Louis.

complete job cost records it would be possible to estimate closely the maintenance needs of a coming year. Table XLVI shows that at the present time in St. Louis large amounts of money are turned back to the General Fund from the repairs appropriation each year. It is believed that this is contributed to largely by considerable inaccuracies in estimating the budget. At the present time very complete "job cost sheets" are kept classified according to general type of work, carpentering, painting, plumbing, etc. These job cost sheets contain the full data concerning labor and materials used on the job, necessary to the computation of costs. They are filed in the central offices however without being adequately computed and classified. It is evident that the buildings department has here the possibilities of a good cost accounting system. That the value of such is already recognized by the building superintendents is shown by the use that they make of the job cost sheets. It is believed that these should be worked up into a thorough unit cost scheme. With the scheme once constructed, to keep it up to date would be a comparatively simple matter.

C. Overhead Costs. It is indicated later in this report that a major portion of a departmental report should be based on a statement of unit costs. The central administration of each department of a school system should be prepared to report to the Board of Education how much its administrative costs are. The administrafive offices have developed widely differentiated kinds of jobs. It should be possible to state how much it costs to carry these on.

Summary of Conclusions and Recommendations on Accounting and Clerical Work

1. A very large amount of routine office work in connection with the operation and maintenance of the buildings of a large city system has necessitated an elaborate clerical staff. It is more than ample at the present time to care for the routine clerical work of the department.

2. Cost accounting for school buildings should include operating costs, maintenance costs and overhead or administrative costs. Operating costs include costs for janitorial service, fuel, water, light and power and budgetary analysis. The buildings department at the present time does not compute comparative or historical costs of janitorial service or fuel.

The Commissioner of Buildings submitted to the Survey staff on August 31, a comparative analysis, by appropriations, of all expenditures of the buildings department for the past ten years. This is an excellent GENERAL historical analysis of TOTAL expenditures in the department, not however of unit costs. It does not include the type of building analysis of janitorial and heating service that the Survey staff is recommending herewith.

Recently the department has inaugurated the analysis of water, light and power costs and a comparative analysis of the budgets of recent years. The continuation and extension of this work will justify the existence of a large clerical staff.

3. A complete and up to date system of job costs on periodically recurring repairs would facilitate the construction of maintenance budgets. Job cost sheets well arranged and thoroughly itemized as to labor and materials are kept in the buildings offices. From these a system of unit costs could be worked out and classified to facilitate the work of the building superintendents.

THE MANAGEMENT OF THE DEPARTMENT OF SCHOOL SUPPLIES

The department of school supplies in St. Louis spends upward of $200,000 each year. It provides free of charge all kinds of educational and operating supplies. Like the building department it has an elaborate central organization for the handling of the business of the department. Our cost tables show however that St. Louis is spending less money

TABLE XLVII.—TOTAL EXPENDITURES PER PUPIL IN AVERAGE DAILY ATTENDANCE AND RANK IN EXPENDITURES FOR TEXTBOOKS, EDUCATIONAL SUPPLIES, JANITORIAL SUPPLIES. 19 CITIES. 1912*

City	Expenditures Per Pupil in Average Daily Attendance for			Ranks in Expenditures Per Pupil in Average Daily Attendance for		
	Text Books	Educational Supplies	Janitorial Supplies	Text Books	Educational Supplies	Janitors' Supplies
Baltimore	$0.99	$0.79	$0.11	3	14	14 or 15
Boston	.82	1.63	.17	4	4	10 or 11
Chicago	.062	.63	.21	14	17	6
Cincinnati . . .	.511	1.58	. . .	9	6	. .
Detroit	.40	.89	.07	11	12 or 13	17
Indianapolis .	. . .	1.61	.12	. .	5	13
Jersey City . .	.676	.65	.20	6	16	7
Kansas City .	.04	.61	.18	16	18	8 or 9
Los Angeles .	. . .	2.17	.26	. .	2	3
Milwaukee . .	.09	1.01	.23	13	10	5
Minneapolis .	.574	1.40	.16	8	8	12
New Orleans .	.05	.97	.44	15	11	1
New York	.027	2.20	.11	17	1	14 or 15
Philadelphia .	1.05	.89	. . .	2	12 or 13	. .
Pittsburgh . . .	.659	.69	.18	7	15	8 or 9
San Francisco	.198	.59	.085	12	19	16
St. Louis	.415	1.08	.17	10	9	10 or 11
Seattle	1.142	1.79	.32	1	3	2
Washington .	.697	1.57	.24	5	7	4

* Data from "Financial Statistics for Cities, 1912," U. S. Bureau of Census.

per child in average daily attendance than the average of the 21 largest cities of the country. Table XXX shows that in 1915 it ranks 11th in expenditure for school supplies; and in 1914 it ranks 9th. To check still further this important item a computation is given in Table XLVII for the 19 largest cities of the cost per pupil for educational and operating supplies separately, as shown by the data collected by the agents of the Bureau of Census in 1912. This table again confirms the status of 1914 and 1915, St. Louis ranking 9th in cost of educational supplies and 10th or 11th in cost of janitorial supplies. It seems clearly established therefore that although giving all supplies to pupils free, the Board of Education in St. Louis is spending slightly less money per pupil than the average city of its class. These questions arise then: Are the schools getting a sufficient quantity of supplies? Are the supplies of such quality as to promote efficient instruction? Are the supplies used and the methods of buying them efficiently standardized according to sound business principles? Is the accounting done in such manner as to protect the Board and the people and at the same time lead to the development of the greatest possible economy and efficiency?

There are two fundamental criteria controlling the management of a supplies department in a large public school system: 1—All phases of the standardizing, buying, storing, delivering and accounting for school supplies shall be controlled by the one purpose of the department,—*to promote efficient instruction.* In other words, a supplies department is not a bona fide commercial organization controlled alone by the principles of a "going" business concern. Supplies are not bought to be *sold;* they are bought to be given to pupils as a part of the contribution of the community to their education. The second criterion in the management of the department is this: Within the limits of the assumed purposes of the department, the actual carrying on of every phase of the buying, storage, delivery and ac-

counting for school supplies should be done in conformance with sound principles of efficient business management. The city having adopted the policy of giving all textbooks and educational supplies free, it is the business of the Board to organize and operate the necessary commercial routine on the best possible business methods, provided always that these methods take complete account of the needs of the instruction of pupils. It is the business of the Survey staff to examine the various details of the work of the supplies department in the light of these fundamental criteria.

There are four principal kinds of activities carried on by the supplies department of a public school system: 1—the purchase of supplies; 2—the storage of supplies; 3—the delivery of supplies; and 4—supplies accounting and clerical routine.

I. The Purchase of School Supplies

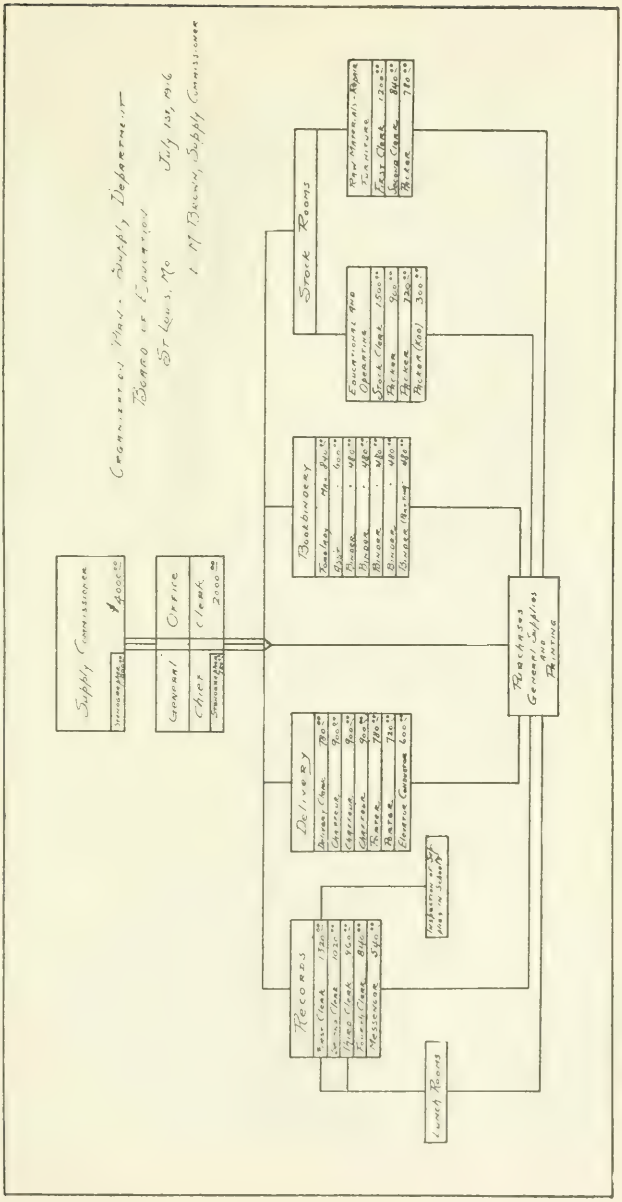
A. Standardization of Supplies Used in the Public Schools

There are two principal kinds of supplies handled by the department: Educational supplies, or those contributing fairly directly to the work of instruction; and operating and maintenance supplies, contributing but very indirectly to the work of instruction. In general the treatment of them will be discussed together in this report. The supplies of a school system should be standardized as to *kind* of supplies used for particular purposes and as to *amount* used throughout the system. In St. Louis the operation and maintenance of the public schools calls for the utilization of over 1300 different kinds of materials, both "educational" and "non-educational." It is possible at any time to agree upon the particular kind of materials that will best fit the needs of instruction, operation and maintenance. It is possible to keep such adequate records of the amount of supplies used as to to determine rather accurately the "supplies budget" for any coming year.

Centralization and a Well Differentiated Organization Needed. An essential prerequisite is the building up of an independent supplies department, under one administrative officer of major rank in the system and the careful differentiation of all the functions of the department. Diagram XVI shows in detail the organization of the supplies department. It reveals a relatively stable and well paid force organized to take care of particular duties in a thoroughly business like manner. The chart gives the title of each position, the years of service and the salary paid to enable a comparison to be made later with other central departments. The detailed examination made of the working of the Supply Commissioner's organization leads the Survey staff to the conclusion that the citizens of St. Louis may feel assured that the supplies are being handled in a very efficient manner. At every step the procedure of the department checks the principles laid down by the Survey staff for the critical estimate of its work. The points of the detailed discussion may be anticipated by saying; educational supplies are standardized very thoroughly; the department buys at lowest prices; the materials are practically always those selected by experts in special lines and fit the educational needs of the system; they are stored and handled economically; they are distributed in such a way as to give the schools good service; they are accounted for very minutely by a very elaborate scheme of supplies accounting. It is believed that here again centralization of departmental work and a careful differentiation of function has resulted in a very high degree of efficiency at a slightly less than average cost. We shall take up the steps in the procedure of the department more in detail.

1. **Standardizing the Kind of Supplies Used.** The particular *kinds* of supplies to be used in a school system should be determined by the people who know most about them, namely the teachers and supervisors who have to use the educational supplies and the other employees and superintend-

DIAGRAM XVI


Organization Plan - Supply Department
Board of Education
St Louis, Mo July 1st, 1916
I M Brown, Supply Commissioner
Supply Commissioner $4000.00
General Office
Chief Clerk 2000.00
Records
First Clerk 1320.00
Second Clerk 1020.00
Third Clerk 960.00
Fourth Clerk 840.00
Messenger 540.00
Delivery
Delivery Clerk 780.00
Chauffeur 900.00
Chauffeur 900.00
Chauffeur 900.00
Porter 780.00
Porter 720.00
Elevator Conductor 600.00
Bookbindery
Stock Rooms
Educational and Operating
Stock Clerk 1500.00
Packer 900.00
Packer 720.00
Raw Materials - Repair Furniture
First Clerk 1200.00
Second Clerk 840.00
Packer 780.00
Purchases General Supplies and Printing
Inspection of Supplies in Schools
Lunch Rooms

ents who have to use operating and maintenance supplies. In the main this is the procedure followed by the St. Louis department of supplies. Working through committees of teachers in the various departments of the different high schools of the city, high school supplies have been very thoroughly standardized. The recently issued "Catalog of Supplies Authorized for Use in the St. Louis High Schools" is an excellent example of the degree to which standardization has been carried. This is a catalog of 1036 different items used in High Schools in which is indicated exactly which departments may use particular items. Furthermore, a completely itemized description is given of all materials used, and compiled in an annual printed book of Specifications. For the grade schools the standardization of kinds of material is in the hands of the supervisors of subjects and grades. All educational materials are thus being *completely* standardized—the first step in efficiency. It is questioned whether operating and maintenance supplies have been standardized in the same manner and it is suggested that to establish the fact that the most applicable materials are being used throughout the system, the supervisor of janitors, building superintendents and more experienced head janitors should attempt a more thorough standardization in this particular.

2. Standardizing the Amount of Supplies Used: The Supplies Budget. Each year the annual budgetary estimate for the following year is made up in each department. In the Supplies Department the estimate of amount of materials needed is largely done by the office of the department from the records of amounts used the previous year. For the elementary schools the office of the Supply Commissioner compiles the budget. The bookkeeping of the department, including as it does the itemizing of charges against buildings and departments, enables a very accurate budgetary estimate to be made for each item. For the high schools each department of each high school compiles its estimate and these are checked by a complete set of record cards in the office

used in assembling the budget. The supplies budget once compiled is discussed and approved by the Committee of the Board on Auditing and Supplies and is very generally formally approved by the Board without further changes. It is then printed in the permanent form of a book on "Specifications of Supplies," advertised in the papers and sent to the 600 or more representatives of the trade, on the mailing list of the Supplies Department. For 1916-17 this is a 70-page book, the organizing of which has included many devices for facilitating the making of bids by competing firms and tabulation of the bids by the office force. It appears that every precaution has been taken here to expedite the work of standardization and purchasing supplies. The successful bidders are bonded to the extent of 50% of their bids and the Board takes advantage of bidding to prescribe that it may buy any quantity of supplies between 90% and 110% of amount named in the specifications. In the case of items upon which definite insistence is made for bidding in specific articles, bidders may have access to prescribed samples. Each bidder is required to submit samples with bids for many items upon which the trade has no absolute standard. These samples are judged by committees of teachers or supervisors in the case of educational supplies or by the various building superintendents or bosses in the case of operating and maintenance supplies. Samples are numbered and precaution is taken to make it impossible for any judge to recognize the make of any article. This is done with unusual care and the members of the Survey staff have no hesitation in commending the whole procedure. Three satisfactory samples in the case of educational supplies and two samples in case of operating supplies are selected. The bids are opened in the presence of the Committee on Auditing and Supplies and are then tabulated by the office force. Steps have been taken to facilitate the accuracy and speed of tabulation and interpretation of these bids. The successful bidders are picked from the lowest bidders who have submitted samples which have been found to be satisfactory.

All buying of supplies must be done by the Commissioner of School Supplies. No teacher or other employee, supervisor or administrative officer may purchase supplies. There are very minor exceptions to this rule in the case of the special departments (buying perishable supplies for example). In purchasing supplies the Commissioner wisely attempts to differentiate between the staples and smaller items on which he can economically carry a year's or six months' stock and those items in the case of which it seems better to let the firm carry the stock. Doing a business of over $200,000 a year the department runs a monthly stock on hand of about $50,000. In the summer months preparatory to the September deliveries this amount is exceeded. In spite of the low cost of operating the supplies department of the St. Louis schools the process of standardizing both quality and quantity of supplies and of buying in the market must be said to be excellently done. It leads to a very high degree of efficiency in school supplies.

B. The Steps in the Routine of Getting the Supplies to the Pupils.

The procedure of getting supplies to the pupils may best be outlined briefly as follows:

I. Regular supplies. 1. Requisition made out by school principal or department officer, in quadruplicate. Quadruplicate copy stays with the person ordering.

2. 3 copies mailed to Commissioner of Supplies.

3. O. K.'d by either Commissioner of Supplies or Chief Clerk.

4. 3 copies go to stock room where requisition is filled, routed and sent to delivery platform, and charged against driver.

5. Supplies delivered to schools at regular time of delivering. 3 requisitions go to the school with supplies; one is left with principal as notice of what supplies were delivered.

6. Two remaining blanks, receipted, go to Supplies office, to release charge against driver and to enable schools and department to be accurately charged with the amount of supplies used.

7. Once each month the remaining copy of requisition goes to auditor to enable abstracting and charging in that office.

II. Miscellaneous Supplies:—Supplies not regularly carried in stock are sent to the respective administrative officers for approval, e. g., the educational supply requisitions go to the superintendent of schools. They then go to the auditor for a two-fold check: (1) to ascertain that there is a sufficient balance in the respective "appropriation" to permit payment of the account; (2) to get his O. K. on the method of charging the requisition in question. In the purchase and delivery, if possible the firm sends supplies immediately to proper school and bill comes to the supply office with delivery properly receipted.

It can be seen that the whole procedure is a system of checks and balances and that from the standpoint of giving an accurate accounting of all business done it is a most thorough plan. It should be pointed out that the requisition for educational supplies is a completely itemized printed slip, that for janitorial supplies is not requisitions for the latter are transferred to an order slip which is filled and treated like an educational supplies requisition. It is questioned whether this is not uneconomical and is suggested that there be adopted an itemized printed requisition blank for janitorial supplies.

II. The Storage of Supplies.

The supplies of the Board of Education are stored in the Board's central warehouse, designed and constructed under the Buildings Department in 1908 at a cost of $129,386.52. It is a four-story reinforced concrete brick structure, fireproof and permanent in every detail. It is located fairly in

the central portion of the city. The central offices of the department are now located there in close touch with all phases of receiving, storing and delivering goods. This is a recent reorganization brought about by the present commissioner, the supply offices formerly being located with the other administration offices in the Board of Education building, several miles away. Every detail of the procedure of his department is now immediately under the hand of the Supplies Commissioner. At the same time it is to be noted that his scheme of organization delegates the various duties of the department and makes of him a real major administrative officer, spending his time largely on questions of policy and ways and means for improving the service.

Inspection of the warehouse by several members of the Survey staff revealed that there is more than ample quarter storage room for the supplies, book bindery offices, and central repair shops, during the major portion of the year. In the design of the building some rather serious mistakes were made, which are now hampering certain activities of the department. An example of these is found in the use of inside delivery platforms, and narrow alleys from which to load; the use of a mezzanine floor in connection with the loading platforms. Beyond these it is believed that the department should examine carefully its present disposition of the different kinds of stock throughout the warehouse with respect to the relative accessibility to the delivery platforms. It should be possible to determine rather accurately the most effective location of each type of supplies as shown by the frequency of use, bills, etc. The present staff has recognized the weaknesses in the storing scheme pointed out. With these exceptions the Survey staff would commend the way in which the warehouse staff is performing its duties. Supplies are carefully classified, plainly marked and systematically arranged in such a way as to facilitate the filling of orders. It is also relatively simple to check up the Commissioner's stock at any time. This checking is thoroughly done by the Auditor twice a year.

III. The Delivery of Supplies.

Supplies are delivered regularly from the Board's warehouse every two weeks by electric trucks. In the selection of the trucks careful study was made of the relative economy of using gas and electric machines. Plans are under way now to change the time of delivery to once a month. It is believed that if put into operation this will result in a sound economy without impairing the efficiency of the handling of supplies. The regularity of delivery permits of an established routine in the ordering, receiving and distributing of supplies in the buildings. Members of the Survey staff interviewed principals in 30 buildings. The quality and quantity of supplies received by the schools is believed to be satisfactory in every way. A study made of the delivery routes revealed them to be carefully planned.

IV. Fuel for the Public Schools.

One of the largest single items of operating expenditure is that for fuel. The St. Louis Board of Education buys upwards of 36,000 tons of bituminous coal each year at a total expenditure of over $60,000. During the past five years the cost for fuel per pupil in average daily attendance (as shown by Table XLVIII) has decreased remarkably. The Board buys its coal at a lower price than any other city of its class in the country, last year at $1.91¾ cents a ton. At the same time, Kansas City was spending $3.50 a ton for soft coal. Such low per capita costs, decreasing during a course of five years mean one of two things,—poorer coal or increasing efficiency in buying.

The Survey staff has studied this problem carefully. It has examined the methods of standardizing the specifications on coal; it has examined the coal left on hand at the end of the year in 30 buildings; it has examined the unloading of cars and inspection by the schools' agents in five of the eight coal yards. As a result of this careful examination it is prepared to commend without reservation the whole procedure.

TABLE XLVIII.—TOTAL EXPENDITURES AND EXPENDITURE PER PUPIL IN AVERAGE DAILY ATTENDANCE FOR TEXTBOOKS, OTHER INSTRUCTIONAL SUPPLIES, OPERATING SUPPLIES, AND FUEL, IN ST. LOUIS, 1910-11 TO 1914-15, INCLUSIVE*

	Average Daily Attendance	Total Expenditures for				Cost Per Pupil in Average Daily Attendance for			
		Text Books	Instructional Supplies	Operating Supplies	Fuel	Text Books	Other Instructional Supplies	Operating Supplies	Fuel
1910-11	62,462	$40,671.54	$82,233.95	$13,306.80	$54,524.07	$0.65	$1.32	$0.21	$0.87
1911-12	62,552	29,896.24	78,667.28	13,563.71	58,931.17	.48	1.26	.22	.94
1912-13	64,103	28,613.66	87,424.54	13,282.18	58,075.76	.45	1.36	.21	.91
1913-14	71,992	38,898.22	106,700.36	15,044.97	58,383.05	.54	1.48	.21	.81
1914-15	78,617	37,286.76	105,175.55	14,480.31	63,031.87	.47	1.34	.18	.80

* Data from Annual Reports of Board of Education, St. Louis.

The buying of coal is protected by rigidly worked out specifications, controlling in detail every phase of the procedure: Kinds of coal, weights, methods of determining size (by forking methods), time and methods of deliveries, inspection, contract forms, bonding of bidders and deposits. The methods of delivery are carefully controlled, the city being divided into 6 fuel districts.

The coal left on hand in the buildings has proven *without exception* to be an excellent grade of soft coal, lump, with no slack, dirt or other foreign matter.

All loading of coal in each of the various yards is done under the inspection of an agent of the Board of Education, who personally oversees forking of the coal from cars (all coal is loaded with no less than a 1⅛″ fork) weighing of coal by a bonded weigher and who verifies, signs weight scale tickets and mails tickets to Building Department each day.

It is stated without reservation that the coal buying procedure in the St. Louis school system is done in such a way as to establish a standard for cities working under similar conditions. Standards cannot necessarily be best obtained from the average procedure of a group of cities. Instead, it should be obtained by determining the procedure of the city that is getting a very desirable result with a minimum of expenditure. This St. Louis is doing in the buying of both instructional supplies and fuel.

The Cost of Free Textbooks in St. Louis.

Expenditures for textbooks in the public schools is recognized by administrators as an important item. The standard form of accounting has recognized it as a separate class of expenditures for the past few years. In St. Louis, all textbooks and supplies have been free to pupils since 1903. The installation of the scheme resulted in a large initial per pupil cost for high school books which, however, was followed in two years by a per capita lower than other cities in

the country. The elementary school costs for texts have always been consistently lower than other cities supplying free textbooks.

Tables XLIX and L give the data on this situation. Table XLIX shows the per pupil cost computated on a basis of average daily membership, from the date of the inception of the scheme. It is unfortunate that the accounting methods of the system have not recognized the standard unit of computing instructional costs by average daily attendance. It did not do so until 1914-15, although certain costs were computed on this unit by the Supply Department in 1912. Table L shows that St. Louis in 1911-12 spent less per pupil (in average daily attendance) than any other city giving free textbooks whose records supplied data on cost in 1911-12. The figures for the other cities are computed on a basis of average daily attendance.

TABLE XLIX.—EXPENDITURES PER PUPIL IN AVERAGE MEMBERSHIP FOR TEXTBOOKS, AND COST PER BOOK OF BINDING OLD TEXTBOOKS. 1903-04 TO 1914-15*

Year	Expenditures Per Pupil for New Text Books			Cost Per Book of Binding Text Books
	High School	Elementary School	Teachers College	
1903-04 ..	$6.56	$0.83	$.....	$.....
1904-05 ..	3.19	.50	10.75	.....
1905-06 ..	2.03	.49	3.98	.1930
1906-07 ..	2.38	.20	19.02	.1721
1907-08 ..	.97	.32	6.20	.1304
1908-09 ..	1.43	.38	2.33	.1460
1909-10 ..	3.08	.33	2.62	.1020
1910-11 ..	1.57	.48	4.24	.0975
1911-12 ..	1.31	.35	.61	.1007
1912-13 ..	1.18	.29	1.21	.1090
1913-14 ..	1.51	.47	.45	.1164
1914-15 ..	1.26	.32	.97	.1085
Average .	2.206	.413	4.76	.1276

* Data from Annual Reports of Board of Education.

TABLE L.—EXPENDITURES PER PUPIL IN AVERAGE DAILY ATTENDANCE FOR TEXTBOOKS, 14 CITIES. 1911-12*

City	Amount Spent Per Pupil		Rank in Amount Spent Per Pupil	
	High School	Elementary School	High School	Elementary School
Philadelphia	$4.05	$1.52	4	1
Albany	4.09	.97	3	2
Boston	1.94	.91	12	3
Toledo	2.28	.88	7	4
Newark	5.78	.79	1	5
Omaha	2.94	.76	6	6
Spokane	4.21	.74	2	7
Cambridge	2.08	.69	11	8
Minneapolis	....	.67	..	9
Jersey City	2.26	.60	9	10
Providence	2.27	.58	8	11
Fall River	3.27	.53	5	12
Lowell	2.16	.50	10	13
St. Louis	1.34	.43	13	14
Average	2.97	.715	..	..

* Data from City School Circular No. 1, U. S. Bureau of Education, Newsletter, 1915.

There could be three reasons for a city having a low textbook cost. 1. It could buy books more cheaply than other cities. 2. The life of books could be longer in the city in question. 3. It could account for its books more thoroughly, losing fewer through wastefulness and dishonesty. Figures are available to show that the second of these reasons accounts quite largely for the low cost in St. Louis.

Secondly, the department of Supplies has been able to prove that a school system can operate a book bindery to good advantage. In 1905, two years after beginning of free textbooks scheme a book bindery was established. The cost of binding books stated in cents per book has been computed

by the Supplies Department and reveals a large initial cost (19 cents the first year) followed by very low costs per book since that time. During the past six years the bindery has bound books at an average cost of about 10 cents a copy. This is but a fraction of the initial cost of the books. Statistics are not available showing the life of textbooks in St. Louis. This is a study which might well be taken up by a department equipped as the Supplies Department there is. The inquiry of the Survey staff shows, however, that the life of text books has been much prolonged by the binding of texts within the system. An inquiry made concerning the cost of binding school books shows that specialists in this field regard the St. Louis unit cost as very low. Comparative data are not available for other cities.

Thirdly, the departments of auditing and supplies keep a very close check on the use of textbooks in the schools. Each principal is held financially responsible for the books in his school. The total number of books kept at any school cannot exceed the enrollment in the school plus 25%. Each teacher and principal keeps up to date a standard textbook record which is inspected and checked by the Auditor once each year in a personal visit to each school. The per cent of books lost or destroyed annually in the entire system is very small. In 1913-14 it amounted to $1009.07, about 2-3 of one per cent of the entire value of textbook stock on hand. Examination of the scheme of accounting for textbooks, both in the warehouse, in the schools and in the records of the central office show the system to be excellently worked out and one that protects the Board of Education to the extreme.

V. Supplies Accounting.

The standardizing, buying, storage and delivery of supplies must be accompanied by a complete scheme of supplies accounting. As in the department of school buildings, so in the department of supplies the office work must be of two principal types, clerical routine and professional cost accounting.

A. The Clerical Routine in the Supplies Department includes the carrying on of the following jobs:—the handling of educational and operating requisitions, including abstracting and making price extensions for account distribution, the handling of textbook records, lunchroom records, carfare records, book bindery records, contracts, lettings, bills, emergency orders, and invoices, ordering out of material from stock room, stock records, abstracting charges against schools departments and appropriations, filing of requisitions and other record material, stenographic, messenger service and correspondence work.

B. Out of certain of these activities should grow a well-developed system of cost accounting, located either in the Supplies Department or in some central accounting office. There should be two principal outcomes of such cost accounting:—a scheme of permanent inventory for all supplies and a definite system of charges against buildings departments and appropriations which will result annually or more often in the computation of specific costs. These costs should include: The cost of various typical classes of supplies per unit (e. g., per pupil in average daily attendance), for each of the principal kinds of schools, day, evening, elementary, high, normal training, special schools of various kinds, etc., the cost of supplies of various kinds per building.

1. It will be agreed that the former of these activities, i. e., the keeping of an inventory can be done most economically by and is properly a function of the accounting staff of the Supplies Department. It is regarded as such in St. Louis. Very complete stock records are kept constantly up to date. Various standardization schemes have been devised by the accounting staff to facilitate the checking of such records. Members of the Survey staff inspected the records, blank forms and accounting schemes of the Supplies Department. This inquiry has shown that there is a constant attempt to improve and short cut the routine involved in the maintenance of the books of the department.

2. The annual report of the Supply Commissioner includes a statement of the cost per pupil in average daily attendance for stationery used in each school in the city. These costs have been computed as a partial result of a very detailed process of abstracting of items in requisitions. The supplies delivered from each requisition are abstracted in the supplies office by charging number of items and value against proper school department or stock. These costs permit critical estimates of the utilization of supplies among the different buildings of the city. It is reported that at times the Instruction Department has made use of this table to attempt to reduce the variability of schools. That such attempts have not been successful is shown by the continued large variability in the cost per pupil in different elementary schools, in Table V, p. 445 of the 1914-15 report. This table shows that there are 7 schools spending more than 60 cents per pupil at the same time that 19 are spending less than 40 cents per pupil. Variability as large as this should be satisfactorily explained or eliminated. This table also gives the costs per pupil in each school for five years. The average cost for all the schools has been computed for each of the years and the average of the deviations of the separate schools as a single measure of the variability of the costs. Table LI gives the results. It shows conclusively that the variability of the costs among buildings has not been materially cut down in the last five years. Table XLVIII showed that during the same time the actual cost per pupil for all instructional supplies except textbooks had remained practically constant. It is the conclusion of the Survey staff that *use should be made* of such unit costs to secure a higher degree of uniformity in the matter of educational supplies.

In this connection it must be noted that detailed cost distribution in supplies stops with this one table. The Auditor's annual report touches the field of "supplies" costs only by giving detailed statements of itemized expenses by school buildings for various activities. Unfortunately these are re-

ported as totals and not as per pupil costs. As totals they are not significant and are valueless as means of diagnosing the cost situation throughout the system. There is thus no statement of the cost of operating supplies and textbooks which should be made a part of such an analysis. The Auditor in giving the per pupil costs in the Table on pages 534-45 (1914-15) gives only general costs for instruction, operating, maintenance, etc., but does not itemize for particular items going to make these up.

The cost accounting for supplies, as well as for other phases of the systems activities might well be made more complete.

TABLE LI.—ANNUAL COST PER PUPIL IN AVERAGE MEMBERSHIP FOR STATIONERY IN ST. LOUIS ELEMENTARY SCHOOLS FOR THE YEARS 1910-11 TO 1914-15, INCLUSIVE*

Year	Average Cost Per Pupil	Average of the Differences of the Various Schools from the Average of all the Schools
1910-11	$0.54	$0.09
1911-12	.53	.08
1912-13	.54	.08
1913-14	.55	.09
1914-15	.48**	.07**

* Data computed from Annual Report of Supply Commissioner, 1914-15.

** Computed on Basis of Average Daily Attendance.

SUMMARY OF CONCLUSIONS ON THE MANAGEMENT OF SCHOOL SUPPLIES.

1. Although providing free of charge all kinds of supplies, St. Louis spends less money per pupil on supplies than the average city of its class.

2. Educational supplies are rapidly being standardized in the St. Louis schools; the kind of supplies needed is determined in the main by the officers and employees most con-

cerned in the use of them, the amount of supplies needed for a coming year from the records of past usage.

3. The buying of supplies is done in accordance with sound business principles. Complete specifications have been worked out for educational supplies and all bidding is done specifically on these. All supplies are purchased by the Supply Commissioner only after competitive bidding, samples of particular articles being tested and approved by various school or business officers. In these matters the Board of Education takes the recommendations of its professional officers.

4. The delivery of supplies appears to be handled economically and efficiently. The proposed change of delivery from twice each month to once each month would seem to be a further step for economy without hampering the efficiency of the handling of supplies.

5. St. Louis spends less per pupil for fuel than any other city working under similar conditions. It secures an excellent quality of coal. It standardized rigidly the specifications under which the buying is done, the inspection of quality and weight receipting for coal at the yards.

6. All textbooks are provided free of charge in St. Louis. They are provided at a cheaper rate per pupil than in any other of 14 cities for which data are available. A longer life for textbooks is made possible due to the operating of a book bindery by the Supplies Department. The cost of book binding has been reduced nearly one-half in the past ten years, and large savings are resulting from the installation of the plant.

7. The accounting for supplies is done with accuracy and thoroughness, and includes a scheme of permanent inventory and a definite system of charges against buildings, departments and appropriations. There is a constant attempt to short cut and improve the routine involved in the maintenance of the books of the department. Per pupil costs for supplies arranged by buildings are computed and reported. These

are not used to such extent that variability in building costs is cut down. There has been no definite organization of the work of cost accounting, with the result that both the Departments of Supplies and Buildings duplicate and overlap to some extent the work of the Auditing Department.

SCHOOL FINANCE AND SCHOOL ACCOUNTING IN ST. LOUIS.

It was noted above that St. Louis has a unique scheme of central administration in its public schools: five co-ordinate administrative officers reporting directly to their respective Board committees. Two of these are the Auditor reporting to the Committee on Auditing and Supplies and the Secretary-Treasurer reporting to the Committee on Finance. We shall inquire in detail into this method of differentiating the accounting work of a school system.

Financial accounting in a school system must take account of at least the following ten types of activities: 1. the general bookkeeping of the system. 2. The distributing of charges and the computation of unit costs. 3. The inventorying or checking up of instructional, operating and maintenance materials charged to the various departments of the system. 4. The management of property owned by the Board of Education. 5. The banking activities of the Board. 6. Receiving and collecting money due the Board from salaries and bills. 8. The compiling, printing and transmitting of financial reports and statements. 9. Methods of acquainting the Board with legislative happenings affecting school property or finance. 10. General routine clerical work.

For many years the Board of Education in St. Louis has distinguished between the first three and the last seven of these ten functions. The general bookkeeping of the schools, the cost accounting and the process of auditing materials have been set off as the types of functions over which a separate administrative head should be placed. The book-

keeper and inventory official of the Board was originally given the title of Auditor and has continued to hold his place as a high salaried executive ($4000 a year), co-ordinate with the heads of the very large departments of instruction, buildings and supplies. Table XLI compares the relative sizes of the staffs in the various departments and gives an approximate idea of the extent to which each department contributes to the carrying on of the various business aspects of public school work. The remainder of the business functions, dealing principally with the management of the property owned by the Board, banking, financial reporting, the budget and the routine financial work were placed under the Secretary-Treasurer, who is the remaining co-ordinate executive officer, and the immediate means of communication between the Board and its various committees and officers.

The Survey staff has examined with care the duties of each employee of the departments of Auditing and Finance, the books, records and files kept by each office, the reports, statements, etc., made by each. It has studied the articulation of duties of officers in various of the central departments and has noted the possibilities of duplication in records and reports. It has not taken upon itself the duty of auditing the books of the Board. This is done thoroughly each year by a firm of public accountants who go through the bookkeeping of the Auditing Department in a very complete manner. The Survey staff has been primarily interested in determining the relative efficiency of the distribution of business functions in the central offices and their articulation with each other.

For the purposes of this discussion the work of the auditing and finance staffs will be discussed as phases of the work of the same department. The officials of the Board of Education themselves have evidently adopted this point of view. This is illustrated by several instances of duplication of work that have been found existing in the two departments. The different functions will be discussed more in detail in order as given above.

The "Auditing" Department.

1. General Bookkeeping of the Board of Education.

In separating the business functions of the Auditing and other administrative departments the attempt to centralize definitely the bookkeeping work of the schools has been only partially successful. This is shown by the fact that nearly every other department is duplicating or in some fashion overlapping in its bookkeeping or accounting, the work of the Auditing department.

Bookkeeping in a school system is of three types: 1—general bookkeeping, utilizing the traditional cash book, journal, ledger, trial balance, Bills Audit, Notes Receivable, etc., and resulting in a complete statement of receipts and disbursements. It results in monthly, quarterly and annual statements of the receipts and disbursements classified according to the particular "funding" scheme of the Board, and according to the "appropriations" or specific accounts in balance sheets of assets and fund liabilities, setting forth the various aspects of the financial condition of the Board, of the cash account by "funds" and a more detailed analysis permitting the Auditor's report of all vouchers paid by the Board: 2—Bookkeeping on account of special funds and activities; for example, various lunch room funds; tuition fund for non-resident pupils; rent funds, etc.; 3—Bookkeeping which results in accounting for the utilization of the funds of the Board—that is, that which distributes all charges against the Board's appropriations in such a fashion as to permit the computation of unit costs for particular kinds of service.

The planning of school accounting in St. Louis has taken account of all three of these types of bookkeeping, the first two very completely and the latter only in part. It must be said first that the bookkeeping methods illustrate the sincere attempt of the entire financial and accounting staff to ac-

count specifically for every phase of the various activities of the Board of Education. The members of the Survey staff have met continually evidences of the same spirit of stewardship,—of responsibility for the operation, maintenance and accounting for school money and school properties belonging to the people of St. Louis. This, however, has led the officers of the Board to a system of checks and balances on each other which has included a considerable duplication of bookkeeping and clerical work. Specific instances of this will be given.

The Board's money is annually apportioned to the various departments by a budget system for the carrying on of various activities. There is an "appropriation" made for each activity, the department being forced to live within its *annual* "appropriation" for the carrying on of the particular activity. To the Auditor has been given the duty of approving and charging warrants against appropriations. This has been so completely worked out that no warrant can go through the accounting office without first being charged against the proper appropriation. This prevents any appropriation from being overdrawn.

In spite of the thoroughness with which the work is done by the Auditor the First Clerk of the Finance Department keeps a daily Balance book, and distributes charges against the same appropriations as is done in the Auditing department, thereby duplicating exactly the steps in the process of checking expenditures. The Secretary-Treasurer suggests that this is done to get a check on the Auditor as it is very important that no appropriations be overdrawn.

The very detailed statement of duties of the employees of the various offices, secured by the Survey staff, indicates that two clerks, one in the Auditor's office and one in the Finance office, are keeping the same book recording rent accounts. In addition to these larger duplications of general bookkeeping, no clearly defined distinction has yet been made between the bookkeeping to be done on account of Lunch

Room Funds, Tuition accounts, petty accounts with domestic science teachers, principals, etc., by the Auditing and by the Finance departments. Both departments are now attending to certain phases of it. It is believed that an adjustment can be made in the general and special bookkeeping scheme that will eliminate duplication and will result in a clear differentiation of function. The question might well be raised: Why separate the three functions administered by the present Auditor from the seven functions administered by the Secretary-Treasurer? From the standpoint of both general and special bookkeeping it would be difficult to answer this question and show why the present scheme should exist. The Auditing department will find its chief reason for being a separate department contingent upon the recognition of its important duties of cost accounting.

2. Cost Accounting in the Public Schools

We saw that these duties grew out of the third type of bookkeeping necessary in a school system: the distributing of charges against departments, buildings, kinds of schools, etc. Just as a cost accounting bureau supplies the data for the more economic management of general business in commercial concerns so will a cost accounting bureau in a school system supply tools for diagnosing problems of school procedure. The computation of pertinent per capita costs for school purposes gives insight into the particular details of the management of school activities that will contribute immediately to the improvement of school work.

Cost accounting for schools should result in a statement of three principal kinds of costs: 1—costs for various kinds of service; 2—costs for various kinds of schools (and if needed, costs for kinds of service in kinds of schools); 3—costs against schools (buildings) for various particular activities. The first type of costs should result in the cost for education in the entire city for administration, supervision and instruction, operation of plant, maintenance of plant

and capital outlay. The National Association of School Accounting Officers, a committee of the department of Superintendence of the National Education Association and the United States Bureau of Education some years ago agreed upon the above principal captions under which to classify school costs. Several hundred school systems in the country have now adopted this standard form of reporting school facts. It is unfortunate that some of the larger systems have yet to classify their accounts in accordance with this scheme. The accounting and financial officers of the St. Louis Board of Education however have taken a progressive place in this movement to develop standard methods of accounting and reporting financial facts. The general captions of the standard form have been in use practically since its adoption by the Bureau and the general accounting is done in a relatively accurate fashion. In Part I, a comparison was made of the statistics of expenditures in 18 cities, collected by the personal agents of the Bureau of Census and on the standard questionnaire by the Bureau of Education. It was seen that for St. Louis the facts as reported in the two sources were closely the same,—but slight difference being found in certain items. It is believed that this indicates that the bookkeeping and accounting methods in St. Louis result in accounts and costs that are easily classified and distinguished. In other words, the differences in the figures in the two sets of records measure, to some extent, the "classifiability" of the accounting systems of the different cities.

In addition to the use of the general caption for reporting expenditures, it should be possible to find unit costs for more particular kinds of service,—educational and business administration, (and, subduing these costs of Superintendent's office, offices in charge of buildings, supplies, finance, etc.); teachers' salaries; supervision; janitors' salaries; salaries of principals and their clerks; instructional supplies, janitorial supplies, text-books, fuel, water, light, and power, etc. The bookkeeping of the Auditing department actually results in

many of these total expenditures, well presented in both tabular and diagramatic form. The unit costs are computed and reported by the Auditor for teachers' salaries, total expenses of instruction, total expenses of instruction and operation. These are also computed and reported annually for day high schools, day elementary schools, all day schools, the Harris Teachers College, the various special schools and the summer term. These are clearly reported in the Auditor's Annual Report. It is possible to compute most of the remaining desirable costs from the classification of total expenditures given. Some of these are confused however by items like "other activities," and "general expenses" which are considerable in amount, over $149,000 for 1914-15, and which have not been appropriated to any of the other main captions.

To be of real value to a school system, local costs for the current year should be supplemented by detailed comparisons with similar costs in other cties, which are working under similar conditions, and with similar costs in the same system in other years. In other words, historical and comparative costs should be reported each year in connection with the costs for the present year. Emphasis should be laid on the cost for specific activities in the doing of this. Carefully worked out comparative and historical data will lead most surely to searching inquiry into the present management of certain kinds of school work and to the improvement of it.

Although the Auditor does not make his report comparative and historical certain others of the officers of the school system have more recently done so. Recent studies by the Secretary to the Superintendent in the 1914-15 Superintendent's report contain a careful comparison of the general financial status of school work in St. Louis with other cities of its class. This sort of analysis might well be made a permanent feature in an annual school report. In the same way the Supply Commissioner and the Commissioner of Buildings are computing and reporting certain unit costs by

buildings covering a term of years to enable comparison to be made of present costs with past ones. These tables could be made a very real means of improving the conduct of school work.

This brings us to a mooted point in the discussion of cost accounting for schools: Where in the system shall "building" costs be computed? Shall the central accounting office compute the cost of supplies by buildings; the heating costs of buildings; the cost of janitorial supplies? Or shall the supplies department compute its building costs; the buildings department its building costs; the instructional department its building costs?

General school costs clearly must be computed in the central accounting office as discussed above. All historical and comparative data needed by any department on the larger questions of expenditure and receipts by the entire system should be made available by the accounting bureau. Costs of particular activities distributed by buildings should be computed by the various departments in those cases where the records in question have to be maintained by the particular department. This clearly applies to the cost of instructional and operating supplies in buildings, to the cost of janitorial service and heating of buildings, to the cost of water, light and power by buildings. It is believed that the carrying on of this cost accounting work in the different departments will also contribute to the development of initiative on the part of the departmental staffs. Primarily, though, it will lead to a real diagnosis of what is going on in the buildings and will enable the departments to check up the efficiency of their own work at all times.

Several excellent instances of progressive use of building costs have been revealed in the course of the Survey's staff's examination. The building department has made a beginning in its analysis of the cost of water, light and power by buildings and by its historical analysis of the buildings budget. The Supplies department computes and reports

each year the cost per pupil per year for stationery in each of the buildings and makes a detailed five-year comparison. It also reports unit costs of bookbinding over a term of years.

In addition to these costs the Auditor computes and reports annually the itemized expenditures and cost per pupil hour (of attendance) for every school in the system, for all expenses of instruction, for all expenses of operations, for all expenses of maintenance. In addition the total expenditure for any particular item going to make up these larger items is reported and the unit costs may be computed. They are not however reported. In general, we may say that the reporting of *current* financial facts by the present Auditor leaves little to be desired further. He might well add cost studies on instruction in various high school departments. Moreover his reporting of *current* costs should be supplemented by comparative and historical studies.

It may also be said that the reporting of such facts has been very much improved within the past five years. Prior to 1910-11 classification of accounts was much less definite and it is difficult to get financial data comparable with present costs.

The difficulty arises in connection with securing comparable data from St. Louis accounts. The unit of computation prior to 1914-15 was average membership. In 1914-15 it was formally changed to average daily attendance, a unit that school statisticians are agreed upon is the best unit for computing the cost of *actual service rendered.* At the present time historical and current cost tables are reported in the annual report without adequate explanation of the unit used.

Examination of the work of computing school costs in St. Louis, impresses one with the fact that each department is computing its own costs with no central agency exercising any supervision over it. For example, we find here as in the case of the general bookkeeping a duplication of work between the Auditing department and the Buildings department. The buildings department has recently overhauled its

blank forms, record system and bookkeeping and instituted many sweeping changes without consultation on particular items with the Auditing department which has been designated as the department to do that sort of thing. The result has been that it is now planned to repeat in the Buildings department the exact steps in the process of charging against buildings, that are now taken in the "abstracting" of accounts in the Auditing department. Comparison of the classifications of headings in the two sets of books shows them to be practically identical. It will be agreed that it should be impossible to institute changes in departmental work that will bring about a needless duplication of work.

The remedy for the situation is clear: make one administrative officer finally *responsible* for all problems of cost "accounting." This is of interest to us in connection with the statement that the present duties of the Auditor hardly justify his rank as a co-ordinate major executive. It may be seriously questioned whether the present work of the Auditing department aside from the specific work of accounting ought to be differentiated from that of the Secretary-Treasurer. It is possible however to create in the Auditing department a central agency for controlling all activities in the school system for which it may legitimately be held responsible. The bookkeeping, cost accounting and inventorying form a natural group of functions which have already been brought together under the Auditor. It has been shown, however, that some of the bookkeeping is duplicated, and in general that the bookkeeping functions are not well differentiated and co-ordinated. In the same way the accounting, which is being so progressively handled, could well be brought under one central officer. This does not mean that the computation of building costs may not well be done by departmental officers. It simply means that all the costs computed, and the bases and methods of computing them should be supervised by one officer.

A BUREAU OF SCHOOL RESEARCH

This leads naturally to the statement that St. Louis has at the present time no central Bureau of School Research, although many of the larger cities of the country,—Boston, New York, Detroit, Rochester, Kansas City, New Orleans, Cleveland, have installed one. The primary purposes of such a bureau are: the collection of educational and financial facts on local conditions, the treatment and interpretations of the facts: the presentation of these facts to the officers of the Board and the Board itself with specific, scientifically prepared recommendations for the use of the data that have been gathered and interpreted. Real progress in school administration can come only through the carrying out of the procedure for the purpose of which a bureau of efficiency really exists. It must be said that the difficulty with the compilation and reporting of financial facts in St. Louis is that little or no use is made of the facts after they have been compiled. The computation of unit costs and statements of expenditures for schools, activities, buildings, etc., can hardly be defended unless it results in some specific improvement of school practice. It is shown later that tables are put into the Annual Report that have practically no educational significance and that they are printed because it is expected that the department will have a report.

It is probable that St. Louis is compiling and reporting its financial school facts as adequately as any other city of its class. The difficulty arises in the fact that it is not being done in an organized manner and that little specific use is made of the facts when they are compiled. There is great need of a central agency for the supervision of this work and for the aid of school officers in determining how to make use of the facts. One of the chief functions of a central bureau of statistics and research would be the assembling and careful interpretation of statistical and experimental data relating to various phases of school procedure, both financial and educational.

The Board of Education already has going on in the various departments certain types of work that should be done by a central bureau of research and efficiency: for example, the recent cost studies by the Secretary to the Superintendent of schools. It is the conclusion of the Survey staff that the Board should look forward to the time in the near future when it will bring all research and statistical and accounting work together in one department. To have it really effective means that the interpretational work of the Bureau must result in the progressive improvement of the instructional work of the schools. This, in turn, means that the Bureau of School Research must be placed under the charge of a school man—a person of teaching experience and of some school administrative experience. The position could well be made a larger administrative position. Since an important part of its work will be cost accounting the Bureau could probably develop most easily out of the functions connected with the bookkeeping and cost accounting of the Board.

It is believed that whether or not the Board looks forward to co-ordinating all its research, statistical, and accounting activities in the fashion indicated, it should take steps to co-ordinate the cost accounting and the reporting of school facts under one central officer. It seems clear that the present functions of the Auditing department should either be expanded to the size of a major executive department or should be merged with those of the finance department. It is suggested that a more careful study should be made of the methods of reporting school facts and that the Auditor might well be given all such duties. In resume, then, the present situation can be improved by co-ordinating the bookkeeping and cost accounting activities and the functions connected with the reporting of school facts. The latter point will be discussed more fully later in the section dealing with the reporting of school facts.

3. The Auditing of School Supplies and Stock

Since school systems use large quantities of supplies and raw materials, Boards of Education wisely require inventories and audits to be made. In St. Louis, the Auditor checks up personally twice a year every item of supplies and raw materials in the Board's warehouse. This work is done very carefully, the stock on hand being balanced in detail against the charges in the Auditor's books.

A second type of auditing done by this department is that of the inventory that is obtained by the Auditor on text-books on hand in the various school buildings. This is done personally by the Auditor and his chief clerk and occupies a great deal of the time of this officer, who is a major executive, co-ordinate with the Superintendent of schools and the other executives of the school system. Every school is visited and the record books of the teachers and principals are checked up against the Supplies Commissioner's figures. According to the statement of principals the books on hand at schools are not actually counted by the Auditor. Because of the very adequate check on the use of text-books in the system it is questionable whether this audit of text-books is necessary, at least it is clear that a major official should hardly be using so much of his time on such a matter. The text-book inventory is legitimately a duty of the Supplies department just as the auditing of supplies used in buildings ought to be.

The "Finance" Department

Of the remaining functions which the present scheme of administration delegates to the department of the Secretary-Treasurer, four are largely matters of routine procedure. These include the collection of monies from minor sources, the payment of salaries and bills, certain phases of routine attendant upon the banking activities of the Board, and the customary office routine of the financial office.

The collection of money from various minor sources includes the collection of tuition fees from non-resident pupils, the collection of rents from property owned by the Board, the handling of the receipts from various lunch room funds, miscellaneous receipts such as from refunds, sales of material, use of rooms, employment certificates, damages, exchange of text-books, etc. In the same way the payment of salaries and of bills makes up a very considerable amount of routine which occupies much of the time of several members of the finance staff. There are the various duties attendant on the checking up of the payrolls after they have been made up in the schools and other departments, the drawing of checks, the delivery of checks to principals and janitors, the payment of Board's mechanics by sending a paymaster (a member of the finance staff) to the various buildings, the payment of all vouchers other than salaries, and the details of bookkeeping arising from the carrying on of these activities. An examination has been made by the Survey staff of the way in which these routine processes are carried on in each of the central offices. Positions involving relatively similar duties have been compared. A study has been made of salaries paid similar positions. In all this work an attempt has been made to distinguish clearly between positions calling for ability and responsibility of different sorts. It is recognized clearly that the title given a position does not necessarily determine its value in the administrative scheme or the salary which has been paid for it. In the analysis that has been made, years of service in each case have been taken into account. From the tabulation that has been prepared, from the careful inspection of the duties of the members of the various staffs and from discussion with various officers of the Board it seems evident that both administrative work and clerical work in the St. Louis schools is paid for at an unusually high rate. The high salary rates for clerical and administrative positions contribute their measure to the large administrative expense revealed by the comparative tables of the cost of administration. It was shown that St. Louis spent more money

per pupil for overhead charges on its schools than any other city of its class in the country at the same time that it spent less per pupil on instruction. Analyzing this still further by data collected by letter from the administrative officers of 18 school systems in this class shows that St. Louis' administrative salary scale, for business administrative positions is higher than that of any other system. It is higher for educational administrative positions in all cities but three. Not only are the major executives paid more individually in St. Louis but there are more of them. Tables LII and LIII are included herewith for the purpose of setting forth the situation with respect to administrative organization and salaries in the larger cities of the country. The data in Table LII have been compiled from personal letters from the Superintendents of schools in these 18 cities in answer to specifically stated inquiries as to salary paid to Superintendent of schools, officer in charge of auditing; officer in charge of financial matters, whether called Business Manager, Secretary, Treasurer, or Auditor; officer in charge of Buildings department, officer in charge of school architecture, officer in charge of janitor service throughout the system, of repairs, of supplies, and of school research. The letters indicated the salaries paid for these particular kinds of service as requested. There is one source of error in connection with the buildings department. The salaries indicated in the columns headed "officer in charge of janitor service," "officer in charge of repairs," "officer in charge of school architecture" are undoubtedly correct as given. The items for the building department, in the case of certain other cities, may be incomplete. That is, it is possible that while St. Louis has included in the upper levels of its administrative organization the various building superintendents, certain other cities *may* not have done so. In the case of Providence the city council administers all matters concerning finance and buildings. The tables are given therefore with this explanation that there may be an error in the figures on certain phases of buildings administration.

TABLE LII.—SALARIES PAID TO VARIOUS ADMINISTRATIVE OFFICERS IN 15 CITIES

City	Supt. of Schools	Officer in Charge of Finance			Officer in Charge of School Architecture	Officer in Charge of Janitor Service	Officer in Charge of Repairs	Officer in Charge of Mechanical Equipment	Officer in Charge of Supplies	Officer of School Research
		Auditor	Secretary	Treasurer						
1	2	3	4	5	6	7	8	9	10	11
Philadelphia . ..		6000			6000					
St. Louis	8000	4000	6000		5000	1930	2400	6840*	4000	
Cleveland	6000	2500	2500		5000					
					(?)	1800		2000	2000	3000
Baltimore	5000	2400			4000			2000	1200	1725
		1800								
San Francisco .	4000		2280			1800	2100		Same as 7	
Cincinnati	10,000		3500			1300	3500	4500		
Newark	7000	5000			5500	Same as 9	2500	4000	4250	
Minneapolis . ..	8000	2500			4000**					
					3500	1500	1800		1620	

TABLE LII—*Continued.*—SALARIES PAID TO VARIOUS ADMINISTRATIVE OFFICERS IN 15 CITIES

City	Supt. of Schools	Officer in Charge of Finance			Officer in Charge of School Architecture	Officer in Charge of Janitor Service	Officer in Charge of Repairs	Officer in Charge of Mechanical Equipment	Officer in Charge of Supplies	Officer of School Research
		Auditor	Secretary	Treasurer						
1	2	3	4	5	6	7	8	9	10	11
Jersey City	7000		2800		6500	Same as 9	Same as 6	2000	Same as 4	
Kansas City ...	6000		3300			Same as 9	2100	3900	2700	3300
Indianapolis . ..	5500	1500	2500	1500	3000	2000			1500	
Portland	5000	3600			Same as 8 and 9	1500	3600		1200	
Denver	6000		2500		4000†					
Louisville	5000	3400			3900					
					4000	960	1500		1000	
Providence	5000	††				$36 per month	††		2000	

* Chief Engineer, Superintendent of Plumbing, Superintendent of Electrical Work.
** Assistant Superintendent in charge of Business affairs.
† Assistant Superintendent in charge of Business affairs.
†† School Committee controls all finance. City Council controls finance and buildings.

TABLE LIII.—ANNUAL CLERICAL SALARIES PAID IN VARIOUS DEPARTMENTS OF THE ST. LOUIS SCHOOLS. 1915*

Finance Department

Officers	Salary	Years of Service
Secretary-Treasurer	$6000	
Chief Clerk	3000	9½
Secretary to Secretary-Treasurer	1380	11
Cashier	2000	30
First Clerk	1500	6½
Second Clerk	1380	26
Third Clerk	1320	4
Fourth Clerk	960	5
Stenographer	?	2
	$12,340	

Auditing Department

Auditor	$4000	
Chief Clerk	1800	5½
Clerk	1440	1¼
Clerk	1200	1
	$4440	

Building Department

Commissioner	$5000	
Chief Clerk	2000	5½
Secretary to Commissioner	1380	4
Assistant Clerk	1260	1
Clerk	900	2½
Record Clerk	900	2
Office Boy	480	1
	$6920	

TABLE LIII—*Continued.*—ANNUAL CLERICAL SALARIES PAID IN VARIOUS DEPARTMENTS OF THE ST. LOUIS SCHOOLS. 1915*

Instruction Department

Officers	Salary	Years of Service
Superintendent	$8000	
Secretary to Superintendent	2700	4
Statistician	1320	7
Teachers Clerk	1260	10
Record Clerk	1020	12
Desk and Filing Clerk	540	4
First Stenographer	960	11
Second Stenographer	720	4
Third Stenographer	900	4
Fourth Stenographer	660	2
Office Boy	300	1
	$10,380	

Supply Department

Commissioner	$4000	
Chief Clerk	2000	12
First Clerk	1320	9
Second Clerk	1020	8
Third Clerk	960	5
Fourth Clerk	840	4
First Stenographer	900	4
Second Stenographer	720	2
Messenger	540	1
	$8300	

* Data from payroll, 1915.

They make clear the great diversity in organization among the cities and confirm the statement made above that St. Louis not only pays more for its administrative functions but also has a greater number of officers. They confirm the previous discussion concerning the differentiating of the financial,

bookkeeping and accounting functions by showing it is relatively uncommon for cities to do this, especially with high salaried men. They show that where there is a differentiation between the duties of the Secretary-Treasurer and the Auditor, for example, it is a distinction between a real administrative position and a clerical position, the latter drawing from $1500 to $2500. It seems clear that as the functions are organized at present in St. Louis there is hardly justification for two large administrative salaries. It was indicated above that expansion of the duties and responsibility of the position of Auditor might justify it however. The tables show, furthermore, that the Board of Education in St. Louis has evidently adopted a general policy of paying large salaries and differentiating business functions in a very detailed fashion. It should be emphasized that in many particulars this differentiation is undoubtedly justified by the high degree of efficiency that the whole system seems to be showing. It has been the task of the Survey staff to analyze this efficiency and point out certain places where it seems possible to improve either the efficiency of the work or to indicate certain economies in administration. Places have been suggested where certain functions should be coordinated and others where administrative or supervisory positions might well be expanded. The general sincerity, energy and initiative displayed by the administrative staff is beyond question.

Table LIII shows that the tendency to endow administrative functions heavily is carried over into the clerical positions. Examination of the table reveals that the large clerical salaries are undoubtedly due in part to length of tenure, although only in part. The staffs of the various officers tend to remain very stable, that of the Secretary-Treasurer showing greatest tenure. If we take due consideration of this fact it cannot be said that *subordinate* clerical positions in the financial office are paid in undue proportion to those in the other offices. The position of chief clerk is more heavily paid than are positions involving similar clerical and administrative responsibilities in other parts of the system.

At the request of the staff in charge of the Survey of business administration, each executive has had compiled a detailed analysis of the duties of its various officers. The Superintendent's office had already done this on its own initiative. It is the conclusion of the Survey staff that the committee of executive officers should use such compilations for the thorough overhauling of the carrying on of the various activities in the central offices. With all the evidence of efficiency that has been found it is believed that the instances of duplications, of lack of clear distinction in function between departments, of lack of coordination of similar kinds of work may be traced very largely to the form of the central organization itself. It is five-headed. Each major officer is coordinate with each other one. It has been shown in the discussion of general organization that the only evidence of formal unification of departments is in the informal organization known as the Committee of Chief Executives. It has been shown however that this committee, being informal, has no definite job assigned to it—hence it does not function as the central clearing house for unification of policy and procedure which it was intended to be. One task it might well take up soon is the unification and clear differentiation of duties and standardization of salaries in these various departments.

The Acquisition and Management of Board's Property and the More Professional Activities of Banking. The Survey staff has been unable to make a detailed examination of the carrying on of these functions, in addition to the study of departmental detail which has been reported in these pages. The extent of the inquiry included an examination of the various records involved and the determination of the general procedure. To investigate personally the efficiency with which school sites, and other types of real estates are bought, sold and kept up, and with which revenue is invested and protected was believed to be beyond the scope of the present inquiry. The records of past activities of the Secretary-

Treasurer, and his staff, show clearly that the Board has put into practice here one of the best accepted principles of school administration, namely,—to delegate to professional officers the management of school affairs, both educational and business, and to then sit in judgment as the inspecting agency on the carrying on of the work itself. In the management of the Board's property and monies it accepts the judgment of the Secretary-Treasurer and has made of his position a real major executive position. The inquiry has revealed that a major portion of the time of the Secretary-Treasurer legitimately goes to the carrying on of these two important duties. In spite of the fact that the multiplicity of routine duties must necessarily engross the attention of the staff the larger portion of the time it is believed that the more responsible relations of management of the Board's property held for revenue purposes and the banking activities are carried on thoroughly in the interest of the Board of Education and in strict accordance with the laws, general and local, which control the conduct of the large financial affairs.

The Reporting of Financial Facts.

Facts concerning current school activities in St. Louis are reported in two principal publications, the Annual Report of the Board of Education and the Monthly Official Proceedings of the Board of Education. The Annual Report for 1914-15 was a 700-page book, 65% of which was devoted to a report of the instructional activities of the schools by the Superintendent, and 35% of which was a report of the four business officers, the Commissioner of Buildings, the Supply Commissioner, the Auditor and the Secretary-Treasurer. The growth of the School Report since 1900-01 is shown by the following table:

Year	Total No. of pages	No. Pages in Reports of Various Officers					
		Pres.	Supt.	Comm. Bldgs.	Sup. Comm.	Audr.	Secy.-Tr.
1900—01	204	..	150	19	2	8	25
1905—06	332	14	222	10	4	34	48
1910—11	476	6	274	16	40	92	48
1914—15	680	14	414	22	46	130	54

School facts are reported to members of the Board of Education as the representatives of the people, each month. It has been the practice of the past generation of large city school boards to make a permanent printed record of their "proceedings." Since their "proceedings" very largely consist of approving financial transactions, reports of committees, resolutions and communications, these printed proceedings become very largely printed records of particular transactions, with a large emphasis on financial matters. Thus, financial facts are first reported monthly to the Board by its executive officers and annually to the people by the Board itself. It should be noted, of course, that the report of the officers to the Board is made the report of the Board to the people. Naturally then we shall expect to find much of the same material printed in the two sources.

The sources in which school facts are reported in St. Louis conform to the usual practice in large American cities, namely, the monthly proceedings and the annual report. The bulk of facts reported in St. Louis has increased to a point, however, that far exceeds that found in any other city of St. Louis' class. The annual reports for fifteen cities show that in none of them does the bulk of school facts reported approach that of St. Louis. Only one other report, that of Chicago, exceeds 400 pages; only four exceed 300 pages; St. Louis' report contains 700 pages. Of the 262 pages in the 1914-15 report devoted to business or non-educational matters, less than five pages can be said to be "interpretational" or explanatory in

a descriptive way of school conditions. It will be of value, therefore, to examine further the non-educational material contained in this report.

School reports are planned and printed to reach three classes of people: 1. Administrative officers, teachers and other employees who should be informed of the conduct of school affairs throughout the entire system. 2. Professional school officers (interested in either the educational or business aspects of school administration) in other school systems, in bureaus and foundations and professional schools, who are active in studying comparatively the various problems of school administration. 3. The Board of Education itself and the more intelligent lay public, whose general insight and educational interest can be depended on to support campaigns for betterment of the public schools. It is important to note that upon the St. Louis Board and its officers devolves the responsibility for deciding what school facts shall be reported. The Charter (Section 25) is mandatory to the extent that it requires that an annual report shall be made "of the condition of the public schools,—of all property under its control, with a full and accurate account of all receipts and expenditures—and of the condition of all invested property." This is, therefore, a general enabling act, plus a requirement that property and receipts and disbursements be accounted for. In accordance with the chartered powers, the Board has supplemented this legislation with a rule requiring that the President of the Board and all other officers shall report each year "on all matters pertaining to their departments and comprehensive of Section 25 of the act creating the Board." It can be seen that these are again general provisions and leave to the officers in question the decision as to exactly what facts shall be reported. The Board is explicit in its demand for full and accurate accounting only in the case of the Secretary-Treasurer. Its rule covering this point requires him to report annually on the financial condition of the Board, and on the lands owned and

leased by the Board. Beyond these general and this one specific requirement the Auditor, Secretary-Treasurer, Supply Commissioner, and Commissioner of School Buildings, each plans the content of the annual report on his department. These reports assembled together make up the Annual Report of the Board.

The kinds of material that should go into a school report clearly must be determined by the aim in mind in attempting to reach the various classes of people to whom the report is to go. It will undoubtedly be agreed that a school report should supply, 1st, those facts that can be interpreted and used so as to improve school practice, directly by contributing to betterment of instruction. 2nd. Those facts that can be interpreted and used so as to improve school practice indirectly by contributing to the improvement of the work of a non-educational department (buildings or supplies, for example); 3rd. Facts that will be comprehended by and will stimulate an interest on the part of the general public in the community, which will result in the support of better schools. 4th. Those facts which will acquaint the public in accordance with law, with the condition of school property and school finance in the city. It has been shown above that it is a relatively simple matter to do the latter. It can be seen, therefore, that the criteria of *interpretability and use should largely govern* the content of a school report. The questions to be asked in making up the report should be: Can this statistical table be interpreted so as to improve some phase of school practice? Does it provide comparative material of which other school systems or students of school administration can make use? If not, can these data be understood by the public and has the interpretation and explanation been made so complete and clear that this report will operate as a means of "educating" (as well as informing) the public to active support of the public schools?

Again it will undoubtedly be agreed that a school report should contain material of three distinct types: 1st. Current

Material. It should report the local situation in sufficient detail to explain the significant developments of the previous year and the present condition of the public schools. 2nd. Historical Material. It should present enough historical statistics on important phases of the school's work to permit a discussion of the growth of particular aspects and of the relative efficiency of the activity of certain departments. 3rd. Comparative Material. It should contain data comparative of the procedure of other school systems working under similar conditions. Lacking an absolute standard for judging the efficiency of school practice, the common practice of many cities may well serve as a check upon the methods employed in any one. 4th. Finally and perhaps most important of all statistical and numerical data should be clearly interpreted either by the officer printing the material, by the superintendent of the schools, or by some other officer especially appointed in the system to study ways and means of improving the conduct of school business,—for example, the director of the bureau of school research and efficiency.

Thus school reports which have been very largely merely statistical and "informational" should become "educational" in the widest community sense. The school report in a city system *may* be made a valuable instrument for the promotion of school work in the city. To become that, however, it must at least conform to the fundamental criteria laid down above.

For many years the St. Louis school report has been made up very largely of the descriptive and statistical report of the Superintendent of Schools. As the St. Louis report has increased rapidly in size the business reports have developed heavily on the non-educational, statistical side. It is a striking fact, however, that the business or non-educational reports (those of the Secretary-Treasurer, Auditor, Commissioner of Buildings, and Commissioner of Supplies) have contributed practically *no interpretation* of the business situations brought about in their department. The reports increase gradually in bulk, small additions being made to the

traditional tables included in the report and gradual changes being brought about in the statistical content of the report. The types of statistics included have improved very greatly. It cannot be found that there is any interpretation of them for school use, however.

Of the approximately 250 pages of "business" statistics in the 1914-15 report, less than 25 pages are devoted to the Buildings Department, roughly 50 pages each to the Secretary-Treasurer and the Supply Commissioner, while 130 pages make up the Auditor's report.

There are seven definite comments that the Survey staff would make on the reporting of school "business" facts in St. Louis:

I—During the last six or eight years the financial and business statistics have developed to a point where they can be made of great value to the school system and to the improvement of school practice elsewhere. In the movement throughout the country to standardize accounting methods, the business officers in St. Louis have taken a leading part. Their activity is revealed by a very progressive treatment of business statistics in their school report. It is possible to get from this report the costs of the principal types of school procedure, in St. Louis alone. Good examples of these are found in the reports of the various officers, viz.:

1—Supply Commissioner's Report—(a) good historical and analytical statement of book binding costs since the initiation of the work of binding books; (b) five-year comparison of per pupil costs for supplies analyzed by buildings. Can be of specific use in standardizing usage of school supplies.

2—Commissioner of School Buildings—(a) Generating and heating costs by buildings; (b) detailed analysis of building accommodations in city (can be used in connection with discussions of problems of new construction and present housing of student population).

3—Auditor's Report—(a) Diagrammatical scheme of representing receipts and disbursements for the year, by activities and schools (the only direct use of the "standard form" of accounting in this report); (b) analysis of total, pupil-hour and pupil-year costs for various activities, for various types of schools (idea of computing the costs is good); might well be re-organized to accord with specific and general types of service in the "standard form."

4—Secretary-Treasurer—(a) Comparative and historical statements of receipts and expenditures.

II—The requirements of the Charter and the Rules of the Board of Education are being rigidly complied with in the reporting of business facts. Complete accounting is made of the property, lands, and receipts and disbursements of the Board.

III—The demand for an annual report from each officer has led to the compilation and publication of a large amount of material which is of doubtful value in a school report. We may include in a statement of such material tables which are of questionable value unless supplemented by very detailed interpretations.

1—Supply Commissioner—(a) Tables of total values of supplies delivered to various types of schools (these are of little value unless reduced to some unit basis and presented historically); (b) unanalyzed statement of *total* cost of transportation by schools for current year; (c) a table 12 pages long, giving itemized *amounts* of each particular kind of supplies delivered to each building in the system; (d) list of text-books, lost or destroyed in district schools,—giving names of books, number and price of each; (e) number and money value of condemned books, together with rebound books, by specific title, number, price, etc.; (f) list of text-books, giving name of book, number in usable condition in all public schools, price, value, etc., 16 pages.

2—Auditor: (a) Detailed statement of *total* expenditures for *particular* activities for each building in the system. (As a statement of totals the table is uninterpretable. It might be condensed to a small fraction of its present size, 44 pages; it ought to be reduced to per pupil basis); (b) detailed statements concerning particular activities and special schools, giving totals and itemized expenditures, etc., might well be condensed and published as unit costs.

IV—The lack of supervision and centralization of cost accounting and the reporting of school facts was commented on in a previous section of this report. It must be stressed again in this connection that due largely to this lack of organization of such functions there is a considerable amount of duplication of statistical facts in the reports of the various officers as well as overlapping in their accounting and bookkeeping activities. This is specifically illustrated by the following references to the various officers' reports.

1—Supply Commissioner: (a) Table (p. 441) giving financial statements concerning Lunch Room activities. Same material given by Auditor p. 632. (b) Table (p. 480) giving expenditures in various appropriations in the department, duplication of Auditor's appropriation statement on p. 521.

2—Auditor and Secretary-Treasurer: (a) Detailed statements (ps. 514-22 and 636) of receipts and disbursements. Same material organized slightly differently in both reports. It was noted above that both the Auditor and the Secretary-Treasurer keep complete books on disbursements against individual appropriations. (b) Assets of Board's various funds. Auditor's balance sheet (p. 508-9) and Secretary-Treasurer's Assets of Board's various funds (p. 657). Same material presented by Secretary-Treasurer but in more intelligible form to the reader not versed in commercial bookkeeping methods.

V—Careful inquiry among the various officers of the Board has failed to reveal that a consistent *use* is made of

the material in the annual reports of the various business officers. The Survey staff believes that the compilation and publication of these elaborate statistics should lead to definite application to improving some phase of school administration.

VI—This application would more surely be made if the compilation and publication of various types of statistics were accompanied by careful descriptive analyses or interpretations. The reports of business officers in St. Louis are statistical compilations. They are unaccompanied by interpretations of any sort, either of historical growth or explanations of unusual states of affairs. Practically no comments of any kind are made.

VII—The business officers in St. Louis have made some use of historical statistics in their report. These, if supported by explanatory and interpretative statements would provide valuable aids to studying school progress in the city.

During the past decade there have been almost no comparisons made of the procedure in St. Louis and the other cities of its class. One of the chief advantages of compiling statistical material arises in the comparison that may be made of practice in various cities. The discussion of the relative efficiency of various types of departmental work may be initiated by means of comparative studies. A very striking use of the comparative method has been made during the past year by the Secretary to the Superintendent of Schools in a cost report. The needs of the situation were very well revealed by tabular and graphic devices for comparing school affairs in St. Louis with those in other cities of its class. Such reports and studies made by the various business officers of the Board would contribute very considerably to raising the efficiency of the various departments.

The Official Proceedings of the Board. Eleven months in the year the Board prints a pamphlet of proceedings of 100 to 125 pages, containing a record of the business of the Board Meeting of the preceding month. This publication

printed annually at a total cost of more than $3000.00 ($3296.80 in 1914-15), contains the records of the following matters:

1—Detailed reports from each executive officer; 2—Reports of committees, both standing and special; 3—Communications from the public with statement of action of the Board.

A tabulation has been made of the material contained in the 1228 pages of the official proceedings for the year 1914-15 and careful study has been made of the distribution. About 14% of the space is devoted to matters of the department of instruction, 16% to those of the Secretary-Treasurer; 14% to the Buildings Department; and 22 to 23% to both the Auditor and to the Supply Commissioner, with the remaining 8 or 10% made up of scattering reports of committees, communications, etc.

As in the case of the Annual Reports so the monthly reports of the executive officers are largely statistical statements of business transacted during the month. In this manner two-thirds of the material in the Secretary-Treasurer's reports are statements of receipts, disbursements, and balances; over half of the Supply Commissioner's reports are statements of bids for purchase of materials (the June issue contains 112 pages of this material, which is a detailed statement of the bids made upon over 1200 items of school supplies, names of bidders, prices, etc.), the remainder is devoted to various types of statistics of supplies; two-thirds of the Superintendent's report is a statement of resignations, appointments, high school graduates, statistics of attendance, etc.; two-thirds of the report of the Commissioner of Buildings is devoted to bids and appointments, and statements of expenditures by buildings for repairs, replacement, etc.; the Auditor's entire report, aggregating 275 pages in the year, is devoted to an itemized statement of expenditures for each department and bills recommended for payment.

Analysis of the printed material in the above business statistics leads the Survey staff to make two brief comments. First: Economies can be made in the publication of the proceedings. Material now published in detail might well be summarized. For example the publication of each voucher paid by the Board each year, covering 275 pages of printed proceedings might justiably be condensed and printed in summary form. Second: Various statistics are now being published in the proceedings and republished in the annual report. A striking example of these is found in the printing of itemized list of text-books by name, price, and quantity on hand, of text-books in usuable condition in the various grades of schools. (It has been indicated above that the printing of these data is of questionable educational value anyway. They clearly should not be reprinted a second time.)

Summary of Conclusions on School Finance and School Accounting

1.—The Board of Education in St. Louis partially differentiates the three functions of bookkeeping, cost accounting, and inventoring, from those of banking, management of Board's property, receiving of monies and payment of bills, reporting of school facts, legislative work of the Board, and general routine clerical work. The first three functions are assigned to the Auditor, the last seven to the Secretary-Treasurer.

2.—The bookkeeping functions have not been clearly distinguished, those carried on in the Auditing and Finance offices and in the Auditing and Building offices duplicating each other. This duplication should be eliminated.

3.—The cost accounting as done by the Auditing Department makes use of the "Standard Form" and results in many valuable unit costs being computed and reported. The computation of the costs might well follow more closely the

standard form however. The local and "current" costs might well be accompanied by historical statements of like costs within the system and by comparative costs for other cities of the same class. Furthermore, the current costs might well be supplemented by studies of department costs in high schools. There is little sign of coordination in the work of cost accounting as carried on by the various departments. The result is overlapping in this field as well as in general bookkeeping. It is the conclusion of the Survey staff that the bookkeeping and cost accounting activities of the Board should be coordinated under one central administrative officer. In this connection, the Board should look forward to establishing a Bureau of School Research.

4.—There is at the present time a very adequate inventory of stock on hand in the warehouse twice a year and a building inventory of text-books on hand once a year by the Auditor. It may be said that the latter is largely a "paper" check which is probably occupying more of the time of a high salaried official than it is worth.

5.—The clerical staffs of the various business offices have served a long time and are receiving unusually high clerical salaries. Examination of the duties of these employees, their records and methods of carrying on the work leads to the conclusion that the actual conduct of the work is very satisfactory. The Survey staff would criticize somewhat the *distribution* of function in the various offices and point out that a general discussion of the Board's policy as to administrative and clerical salaries to be paid for various types of training, experience and ability, would be a wise step. It is clear that the Board differentiates its business administration much more and pays its administrative officers more, than the other cities of its class.

6.—The Board of Education reports school facts in two large publications, the Annual Report and the Monthly Official Proceedings. It is the conclusion of the Survey staff

that these both contain considerable material that might be left out without hampering the efficiency of the reports. Furthermore, both the Annual Report and the Proceedings contain quite a number of statistical duplications, and while many helpful statistics are published, the Board's officials might make valuable additions as pointed out in this report. It may be said that the reports conform in every particular to the legally stated requirements of the charter and the state law. The interpretations of these statistical tables are made for the most part in the portion of the annual report prepared by the Superintendent. It is a question worth considering whether the financial officers would not perform a service by presenting their comments with the tables of facts.

APPENDIX

A. AUDITOR'S STATEMENT[1]

To the Honorable Board of Education
of the City of St. Louis.

Gentlemen:

In compliance with the Honorable Board's request that the respective officers make their comments on the survey recently made by Mr. Chas. H. Judd (See P. P. under date of Sept. 26, 1916, and April 10, 1917, Vol. XXIII, Pages 231 and 870), the undersigned, your Auditor, submits herewith his comments on the same, relative to the department under his supervision.

It has always been the purpose of your Auditor to make the policy of his department a constructive and progressive one, and to conduct the same as efficiently and economically as possible. In the opinion of your officer, criticism, when made by men of broad experience and thoroughly familiar with the practices in the specific field of endeavor, should be favorably received and he especially invites the same.

However, an examination and report of the character which the Survey purports to be should have been made with the aid of skilled accountants, with wide practical experience in this particular field. In this report by the Survey staff on the business branch of the Board of Education, sufficient differentiation has not been made between the expenditures. While it is true that in the cities of the first class the educational expenses are analogous, the same cannot be said of the business administration expenses, for the reason, that the latter depend entirely on the local organic laws governing the Board of Education.

In its compilation of statements and comments on the comparative costs of conducting the school systems of the several

[1] By the Auditor of the Board of Education.

cities, a differentiation should have been made by the Survey staff between the organic nature of the local Boards of Education, which are of three classes, viz.,—

1. Independent school organization or corporation;
2. Department or division of the city corporation;
3. In part department of the city corporation, and in part independent school district.

It is very evident from the anomalous nature of the above classes of school organizations that there would be a lack of uniformity in the elements that go to make up the administration costs and that the departmental and functional activities would vary accordingly. Further, as the data for the statistics of the local Boards of Education are necessarily derived from their books of accounts, the said statistics are therefore affected, both by the very great difference in the organization of the local Boards of Education and by the kinds of accounts kept. It would logically follow that where there is such a wide divergence in the organization of the local Boards of Education, great difficulty would be experienced in formulating a method whereby the statistics may be comparable. The skilled school accounting officer, being fully cognizant of the great difference met in the compilation of statistics showing comparable administrative costs, realizing that the said costs, to be any value, should be specific and representative of similar functions, methods and conditions, and appreciating the fact that the difference in the organic laws governing the local Boards of Education require that the executive powers be distributed to a number of different officers in a great variety of ways, does not attempt to compile statements which purport to show the comparable administration costs of the said cities.

The Survey staff, in classifying all expenditures (Outlays excluded) in two groups, viz., "Business Expenditures" and "Educational Expenditures," and basing its criticisms on a comparison of these expenditures, does not sufficiently sharply

interpret the meaning of these figures. Under "Business Expenditures" it has included expenses of offices of Finance, Auditing, Building and Supply Departments; all Operation of School Buildings, including salaries and expenses of janitors and engineers, fuel, water, light and power furnished to schools; and all Maintenance, including labor and materials used in repairs to school buildings and equipment.

To include under the term "Business Purposes," without distinction, the costs of carrying on the financial and commercial aspects of the Board's activities, with the cost of housing and provisions for the safety, comfort and well being of pupils entrusted to the charge of the Board is manifestly misleading, for the reason, that only the first stated notion is ordinarily conveyed by that term. It is obvious that there is only a difference in degree between providing Instruction, Text Books and School Supplies, which are included under "Educational Expenditures;" furnishing Light, Water, Hygienic and Sanitary Appliances, such as Ventilating Systems, Heating, Plumbing, Repairs to Buildings, etc.; and maintaining a Warehouse and equipment for the purpose of saving the cost of textbooks and school supplies by buying in quantities and at favorable times; a Book bindery to the end of obtaining a longer use of textbooks by rebinding partially worn copies; and a Museum, to which supplies and equipment are constantly added, as well as a Teachers Library, well stocked and requiring the services of attendants; all of which are necessary to the well being and in the interest of pupils at the time of receiving instruction. The inclusion of these latter expenses under "Business Expenses," together with overhead charges, such as expenses of administration, accompanied by a criticism of the "Business Expenses" so obtained, is not proper. In other words, it amounts to this: that the St. Louis Board, by expending liberally in the physical welfare of its pupils, is made the subject of unfair comparison, while had it been niggardly in this respect it would have made a better showing, in that its "Business Expenditures" would have been proportionately less.

The U. S. Commissioner of Education, realizing the erroneous conclusions that would be reached from such findings specifically warns against the same in the following language (See Commissioner of Education's Annual Report for 1913, Volume 1, Page 23):

"It is very easy to cause adverse criticisms to be made against the schools of a city or state, arouse discontent and suspicion among patrons and taxpayers, suggest the need of a Survey, and the advantages to be derived from it, and then offer, for a consideration, the services of an individual or group of individuals to make the Survey. Probably there is no more difficult task in all the field of educational effort than that of making an intelligent and constructive educational survey of a city, county or state. Like most other things in the field of education, this work had better not be done at all than not done well."

In the event that the functions, conditions, methods and requirements in the several cities of St. Louis' class (having a population of 500,000 and over) were of such nature that the comparable costs could be accepted as reliable, it is the opinion of your Auditor that the expenses and alleged comparable costs, instead of being grouped under two captions, should have been extended in greater detail, so as to show the cost of conducting the Administrative Departments—Business and Educational, Operation of School Plant, Repairs and Replacements to Buildings and Equipment, and every other activity of the school system. An analysis of Table XVI and Diagram VI, Exhibit A, purporting to show the amount spent per pupil in what are called "Educational" and "Business" purposes, will amply justify the foregoing observations.

Inasmuch as the report of the Survey purports to show the efficiency or inefficiency of the several departments separately, the expenses and comparable costs for each department should also be shown separately.

It will be hard for the practical school accounting officer to realize what relation the Survey finds between the Expenses of Business Administration, Operation of School Plant, and Repairs and Replacements to Buildings and Equipment. The expenses of Operation of School Plant and Repairs and Replacements to Buildings and Equipment are incurred on behalf of the pupils and should not, under any consideration, be classified with the expenses of Business Administration. It is generally accepted among the practical school accounting officers that it is very difficult to find a satisfactory method of computing costs that are comparable as attempted by the Survey, for the reason, that the charges depend absolutely on the construction of building, physical condition, age of building, weather conditions, etc. It is misleading to the general public to include the said expenses under the caption of "Business Expenses," and to compare the same with what appears to be similar expenses of other cities.

Again, local organic laws and conditions have affected the statistics for the various cities very materially. As an illustration, the following expenditures are made out of the school funds in St. Louis during the fiscal year 1914-15: Special Taxes for Improvements of Streets and Alleys; Street Sprinkling; Light and Water License; the aggregate amount being $123,583.98. In several of the cities, expenditures of this nature are made out of the funds of the municipality. Another important factor affecting the alleged business costs as compiled by the Survey, is the expenditures for Repairs and Replacements to Buildings and Equipment. It will be observed from the so-called "Expenditures for Business Purposes," as exhibited in Survey Table XVI that during the fiscal year 1913-14 the same were increased $411,354.89 over the previous fiscal year, and the increase for 1914-15 was $279,911.25 over the year 1912-13, which is approximately the average expenditure. These exceptionally large increases in these last years were caused by the Board of Edu-

cation being compelled (in complying with the state statutes regulating fire escapes) to reconstruct enclosed stairways and fire-proof all corridor floor construction throughout in all three-story buildings and fire-proof floor over boilers and ash rooms. The cost of this work amounted to $500,774.05.

Expenditures of this nature are interpreted differently by the local accounting officers in the several cities. They may be considered by one as acquisition to Capital, or Outlays, and by another charged to Current Operation. In St. Louis the conservative plan is followed; that is, only new buidings and additions are charged to Outlays. These expenditures are included by the Survey in its so-called "Expenses for Business Purposes," which shows what purports to be comparable costs and statistics.

In the subsequent paragraphs, a detailed analysis is made of the tables compiled by the Survey, with accompanying comments thereon.

Analysis of Table XVI. An analysis (See Exhibit "A") of Table XVI, purporting to show "Current Expenditures and Percent of Expenditures Devoted to All Educational and Business Purposes, 1909-10 to 1914-15," shows the justice of the foregoing criticism.

Taking the same items and grouping them in the same way as proposed by the Survey staff, differences will be found in the totals for Educational Purposes ranging from $40,000 in 1909-10 to $184,000 in 1914-15 between the figures given in table and the correct amount as shown by the Auditor's reports. Further, these differences are in every case unfavorable to St. Louis; that is, they show a less expenditure for what are termed Educational Purposes than will be found actual.

In the group of items termed "Business Purposes" will be found differences ranging from $6,000 too little in 1914-15 to $63,000 too much in 1911-12. These also are against St. Louis,

with the exception of those for 1914-15, which, was in our favor. (The total of $3,631,366.98 for "Educational Purposes" in 1912-13 is undoubtedly a clerical or typographical error of $1,000,000.00).

The per cent which the totals spent for Educational Purposes (according to this table) bears to the total of the two groups of expenditures will be found to be:

1909-10	80.17 instead of 79.6
1910-11	80.84 instead of 79.1
1911-12	80.67 instead of 78.7
1912-13	81.39 instead of 80.2
1913-14	74.26 instead of 72.1
1914-15	76.87 instead of 75.9

Of the amount remaining, spent for what are termed "Business Purposes," the following table exhibits the per cent of the balance that is expended for the housing and physical comfort and bodily care of the pupils attending the schools:

80.37	per	cent	was	expended	in 1909-10
85.78	per	cent	was	expended	in 1910-11
85.09	per	cent	was	expended	in 1911-12
82.77	per	cent	was	expended	in 1912-13
87.35	per	cent	was	expended	in 1913-14
85.47	per	cent	was	expended	in 1914-15

Other misleading features of this table are that it does not include any expenditures made for the Educational Museum and Teachers Library—both purely educational features, nor the expenses of the Attendance and Hygiene Departments, also chargeable to Educational Purposes; and it will not be clear to the lay reader that the total of the two groups does not represent the total expenditures for the respective years.

In the following table (See Exhibit "B"), compiled from the Auditor's annual report, all of the Board's expenditures for each fiscal year since 1910-11 are set forth in detail. And in the table and chart (See Exhibit "C") the percentage that each class of expenditures bears to the total amount spent is clearly set forth. An examination of these tables

will show that the amount spent for Expenses of Instruction, including salaries and expenses of supervisors, salaries of principals, clerks and teachers, text books and stationery and supplies, increased from $2,433,864.09 in 1910-11 to $3,014,859.62 in 1915-16, or 55.35% of the total expenditures in 1910-11 to 68.60% of the total expenditures in 1915-16. These figures do not include Educational Administrative Expenses nor sundry school expenses, which are stated separately.

The expenses of Operation of School Plant, which includes wages of janitors and scrubwomen, fuel, water, light and power, and operating supplies, increased from $345,901.87 in 1910-11 to $435,994.02 in 1915-16, or from 7.87% of the total expenditures in 1910-11 to 9.92% in 1915-16 (the cost of water to the schools increased from $9,233.56 in 1910-11 to $59,794.84 in 1913-14).

The cost of Business Administration, including expenses of the Finance, Auditing, Building and Supply offices, expenses connected with the warehouse and delivery trucks, school census, expenses connected with the meetings of the Board, printing of proceedings, legal services and expenses, and all other expenses in any way chargeable to the Business Administration, increased from $101,416.10 in 1910-11 to $125,343.77 in 1915-16, $10,000.00 of which last amount represents a deposit charged to Secretary and Treasurer to meet emergency payments during the Board's vacation and refunded by him each fiscal year. The percentage which these administrative expenses bear to the total expenditures varies from 2.31% in 1910-11 to 2.85% in 1915-16, which is a very different figure from that of 20.4% to 24.1% set out in Table XVI.

The expenses of Physical Maintenance of Buildings and Equipment, included as part of Business Expenses by the Survey staff, vary from $160,745.39 in 1910-11 to $211,935.54 in 1915-16, or in per cent to total expenditures from 3.66% to 4.83%.

As stated in a previous paragraph, in the fiscal year 1913-14 the Board's expenses for Physical Maintenance were increased to $499,213.03 and in 1914-15 to $351,736.93, due to the extraordinary cost of putting fire-proof stairways in old school buildings. This explanation also disposes of the statement of the Survey that in 1913-14 "the city began to spend a much greater proportion of its money for business purposes." The expenditures for Physical Maintenance for the fiscal year 1915-16 show a decline of $211,935.54.

An inspection of Exhibit "C" will show at a glance the increasing per cent of expenditures for Expenses of Instruction (See Figure 1) and the comparatively steady or decreasing per cent of other expenditures, contradicting the statement of the Survey committee that an increasing stress has been laid on Business Expenses.

Analysis of Tables XVII, XVIII and Diagram VI. The U. S. Bureau of the Census, in "Financial Statistics of Cities," for the year 1912, referred to by the Survey, divides the cities into five groups: No. 1, those having a population of 500,000 and over; No. 2, 300,000 to 500,000; No. 3, 100,000 to 300,000; No. 4, 50,000 to 100,000; and No. 5, 30,000 to 50,000.

For purposes of comparison, those cities in Group 1 will present fair media, inasmuch as the costs for service and materials are probably more uniform than in the smaller communities. An inspection of the analysis of Table XVIII, which has been prepared (See Exhibit "D"), using data given in the United States Commissioner of Education's report, Volume II, 1916, and grouping expenditures in the same way as done by the Survey staff (but, as stated previously in these comments, which lacks uniformity and is not consistent with scientific school accounting terminology as interpreted by school accounting officers) will reveal that, taking cost per pupil per annum in the cities of Group 1, St. Louis ranks fourth in population; fourth in expense per

pupil for educational purposes, so-called; and second in expense per pupil for business purposes. This, therefore, does not materially differ from the results in Table XVIII and Diagram VI, but the conclusions drawn therefrom, viz., that St. Louis is increasing its Business Expenditures at the expense of its Educational Expenditures, is erroneous. Ignoring the fact that the schools of various cities fall into three different classes of administration, which will be shown more clearly in an analysis of Table XIX, the Board of Education maintains a warehouse in which are stored stocks of text books, educational supplies, stationery, etc., bought in large quantities and under contract, for the purpose of saving in cost in these items, which are included in costs of Educational Purposes, but the cost of maintaining this warehouse is charged against the Business Offices. Again, the Board maintains a bookbindery for the purpose of rebinding partly used as text books, which results in a saving of the cost of text books. The cost of this activity is not included in that of Educational Purposes, though educational expenses are proportionately decreased by the operation of the said bookbindery. The same may be said of the Educational Museum and the Teachers Library. These expenditures are plainly given in the Auditor's annual reports, available to the Survey staff, but are included in the expenditures for Business Purposes, thereby reducing the so-called costs for Educational Purposes, with a corresponding increase in the costs for Business Purposes.

Further, of the amount found expended for Business Purposes, viz., $1,023,211, the U. S. Commissioner's report shows $175,117 for Board of Education and Business Offices; $457,649 for Operation of School Plant, in which are included janitors' services and supplies, fuel, water, light and power; and $351,737 for Repairs to Buildings and Equipment. These figures, divided by the average daily attendance as given in the U. S. Commissioner's report, give a per pupil cost for Board of Education and Business Offices of $2.21; Operation

of School Plant, $5.79; and Repairs to Buildings and Equipment, $4.45; and the rank of St. Louis in this group of cities as to greatness of cost for the Board of Education and Business Offices is second, and in Operation of School Plant, fourth. The figure $175,117 as given by the U. S. Commissioner for Board of Education and Business Offices will be found by a reference to the Auditor's report (See Exhibit "B") to include the amount spent on Administration Building, $27,448.66, which should not be included with the Business Expenses, as the costs of the operation of the several departments includes a charge for rentals for space occupied by the said departments in this building. The building is an investment and belongs to the Permanent Fund, a Trust Fund, from which only the income can be used for school purposes. An income of $45,219.46 was received by the Board for rentals for this year, as is very plainly shown in the Auditor's report of annual receipts.

The expense of office of Secretary and Treasurer is increased by a deposit of $11,000.00 charged to him as an Emergency Fund, which is refunded by him in full at close of year.

The cost of Warehouse and Electric Trucks are also included with the total; the said cost, amounting to $19,943, might properly be charged to Operation of Plant.

Deducting these three items from cost of Business Purposes given, the cost will be now found to have been $116,725, and the cost per pupil $1.47, reducing the rank of St. Louis as to these expenses, to fourth.

It may also be pointed out that the average per pupil attendance given does not include Summer Schools or Evening Schools, nor Harris Teachers College extensions, which, if included, would increase the daily attendance to 100,933, and still further reduce the cost to $1.15 per pupil per year. These should unquestionably be included, as the cost of these Evening, Summer and extension schools is included in total costs given. The rank of St. Louis as to business expenditures

would now be reduced to fifth, Baltimore and Detroit being lower because their accounting expenses are borne by the municipalities, and New York and Chicago are also lower because of their vastly greater school attendance, a larger number of pupils naturally reducing the per capita cost of caring for and supplying them.

St. Louis will, however, be found to be high in the cost of Repairs and Replacements to Buildings and Equipment. This is not due to the fact, as stated by the Survey staff, "that the city began to spend a much larger proportion of its money for business purposes in 1914 and 1915," but to the fact that in that year and the previous year the St. Louis Board of Education, as has already been explained, was put unwillingly to a very large expense in the matter of reconstructing and building fireproof stairways in old buildings, the expense of which was charged to Repairs and Replacements to Buildings and Equipment.

Reducing the cost of Business Purposes to per capita by population (Analysis of Table XVIII, part C, Exhibit "D") and making comparison with the per capita costs in the other eight cities of the same class as St. Louis, the same result is found as in the comparison of per capita cost by school attendance, viz., that St. Louis is fourth in total of Business Expenses and Expenses of Board of Education and Offices, and high in cost of Maintenance and Repairs of Buildings and Equipment. Due explanations of these conditions have heretofore been made.

Analysis of Table XIX. A more flagrant misuse of statistics than in Table XIX cannot be imagined. The data for this table were taken from the U. S. Bureau of the Census "Financial Statistics of Cities," 1910, 1911 and 1912. We will examine that of 1912, which are the figures for our fiscal year, 1911-12. Table 37, Financial Statistics of Cities, from which these data are taken, refers to a discussion of said table on page 125 of same report, which, having been overlooked by the Survey staff (to which attention has been directed in preceding paragraphs) is here quoted:

"In making use of Table 37 for the study of the comparative payments by the different cities for the expenses of the business administration of their schools, consideration should be given to the fact that the schools of the various cities fall into three different classes, according to the method of administration, as follows:

1. Independent municipal organization or corporation.
2. Department or division of the city corporation; and
3. In part department of the city corporation, and in part independent school district.

The table presents for the cities whose schools are of the first class, statistics of all their payments for the expenses of business administration. It is quite otherwise with the cities whose schools are of the other classes. Most, if not all, of the expenses of these, for purposes such as are shown in the table in the columns headed "Finance Offices and Accounts" and "General Legal Services," are treated not as school expenses, but as the expenses of City Treasurer, City Auditor, or City Attorney. The same is true to a lesser extent of most of the other classes of the expenses of business administration."

Ignoring the plain warning contained in this discussion of Table 37 by the U. S. Bureau of the Census, the Survey staff has undertaken to set up in comparison with St. Louis, whose school system is included in the first class, and whose entire expenses of business administration are given, statistics of other cities whose school systems are included in the second and third classes, where the expenses of business administration are given in part or not at all, to the great disadvantage of St. Louis, naturally.

Not to make inquiry into the extent to which these expenses have been taken account of, nor to make proper allowance therefor, especially in view of the plain warning given

in the discussion by the Bureau of the Census, above quoted, renders comparisons thus made worthless.

The analysis (See Exhibit "E") which we have prepared of this table further emphasizes this criticism. (Data taken from the same report referred to by the Survey staff, viz., "Financial Statistics of Cities, 1912," Tables 36 and 37). Taking the nine cities of the first class, which, as has been pointed out in the analysis of Table XVIII, are likely to afford more nearly fair media of comparison where costs of services and material are a factor, we find from the Census table itself (37 above cited) that the cities of Baltimore and Detroit should be eliminated, as their expenses of Finance and Accounts, Legal Services, and, in the case of Baltimore, Office in Charge of Supplies, are not given. Further, we will naturally expect that there will be some ratio of comparison between the total amount of expenses handled by the business offices of the various cities and the cost of maintaining those offices. In which expectation we are not disappointed, for we find that the cost of these business offices, eliminating Baltimore and Detroit for reasons above given, bears an inverse proportion to the total expenses, with the exception of Pittsburgh, whose Business Administration Expenses are disproportionately high. In other words, New York, which ranks high as to volume of expenditures, ranks low as to cost of business administration; Chicago, ranking second in volume of expenditures, ranks next to lowest in total of business administration; and so on; St. Louis ranking sixth in total volume of expenses and third in cost of business administration. In other words, where the volume of business handled increases, the overhead charges for handling that business increases also, but in a lesser degree, so that the ratio of overhead charges to cost of handling that business gradually decreases.

In an attempt to account for the difference in cost of Educational Administration, those costs have been divided by the total average attendance of pupils as given in this same vol-

ume, Table 39. This will give us the average annual cost per pupil. This should give us some sort of comparable ratio, providing the same expenses were included in each case. It is apparent, however, that there is some other hidden factor which disturbs that ratio. It is found that Boston, with an average attendance of 102,920, ranks high, with an average expenditure of $2.12⅛ per pupil; Chicago, with an average attendance of 263,064, ranks low, with a cost of $.59⅜ per pupil; and St. Louis, with an average attendance of 80,168, ranks fifth, with an average cost per pupil of $.9278. Your Officer is unable definitely to account for this variation, except that Boston, according to figures given, expends a very great sum comparatively for general promotion of health, the expenditure by Boston being $96,133, against $37,984 by Chicago, and $17,766 by St. Louis.

Your Officer has, however, before him the annual report of the Business Agent of the Boston Schools for 1916, from which he is able to make the following comparison with figures taken from the report of your Auditor for the fiscal year 1916:

The items included under "Educational Administration" by the Auditor of St. Louis are, Office of Superintendent, Attendance Department, Hygiene Department, and Psycho-Educational Clinic, the total expenditures for these being $111,601.55. The expenditures for the same items in Boston are $161,567.45. Dividing these figures by the average attendance of pupils for all schools (including summer and evening schools) the cost to Boston per pupil for Educational Administration is found to be $1.40, against $1.25 to St. Louis; or, taking only day high and elementary pupils, the cost to Boston is $1.60, against $1.40 to St. Louis. This is a very much different comparison than that found by taking the totals as published in the "Financial Statistics of Cities" in 1912, viz., Boston, $2.12, and St. Louis, $.93, and indicates to us that other costs are included in Boston's figures as published in the Bureau of the Census report, than are included under the same heading for St. Louis.

This, therefore, is another point to be guarded against in making comparisons between cities, viz., the possibility of a difference in interpreting and reporting the facts under headings called for by these central Bureaus; the Survey staff should have sought to obtain the statistics directly from the school systems themselves, or at least, have checked up and compared the Bureau's statistics with those published by the school systems themselves.

It has been already pointed out how the expenses for business purposes may be increased to the benefit of the expenses for Educational Purposes in some cities, and it may be here noted that the cost of Business Administration may be increased to the benefit of the cost of Educational Administration to the same extent as the Business Administration relieves the Educational Administration of work, which is done by the Educational end in some cities, thus largely increasing the ratio of cost between the Business and Educational Administration.

Analysis of Table LII. The glaring deficiency of Table LII in the selection of cities made for the purpose of comparison with St. Louis. Of the nine largest cities comprising the first group by the U. S. Census Bureau, only three are chosen by the Survey staff, New York, Chicago, Boston, Pittsburgh and Detroit being omitted. Of the four remaining, Philadelphia and Baltimore are relieved of the cost of conducting the Finance and Accounting end of business offices by the city corporation; and Cleveland of the Legal and Buildings end. The St. Louis schools, on the other hand, are entirely separated from the city corporation and bear their own expenses, even to cost of yearly audit by the mayor's auditor. An inquiry directed to the financial officer of each of these nine cities, relative to the salary paid official or officials whose duties correspond most nearly to those of the Auditor of the St. Louis school system, brought the following additional information: New York and Chicago employ an Auditor at a salary of $6500.00 and $4000.00 per annum re-

spectively; in Philadelphia the auditing of disbursements and receipts is done by the City Comptroller, the expense of conducting whose office for 1916 was $20,146.37, of which $18,419.36 was for salaries; Boston employs a Business Agent, at a salary of $4,740.00 per annum; Pittsburgh has three officials—an Auditor, a Comptroller, and an Accountant, at salaries respectively of $3,000.00, $4,000.00, and $3,600.00 per annum; and Detroit an accounting department, at an expense of $4,500.00 per annum. In passing, we may say that it has been the policy of the Board of Education of St. Louis to entrust its business to men chosen for their peculiar fitness, which undoubtedly accounts for the high standing of the public school system of St. Louis among the school systems of the country.

An examination of Exhibit "F," compiled by your officer, clearly shows that the costs for conducting the Accounting Department in St. Louis not only compares favorably with the cities of its class, but are considerably below the average, again showing the fallacy of the Survey staff's statement that the cost of this class of service in St. Louis was proportionately high as compared with the other cities.

Auditing Department

The act of the General Assembly of the State of Missouri, creating the Board of Education of the City of St. Louis, defines the duties of the officers, as do the rules of the Board, based on the act creating it. The said act and rules also define how all accounting of the Board of Education must be done, and it is the duty of the officer to keep the books and accounts in accordance therewith.

The duties required of the Auditor, as set forth in the act creating the Board of Education, and the efficient performance of same, make him an important official of the school system.

The duties of the Auditor, as set forth in Section 11043, Revised Statutes of the State of Missouri, 1909, are:

1. To be accountant.
2. To be custodian jointly with Secretary of all warrants, vouchers and contracts;
3. To audit and examine all accounts and demands;
4. To be general bookkeeper.
5. To keep accounts of schools;
6. To issue warrants for payments, and to perform other duties required by the Board.

A bond of Ten Thousand Dollars is required from him to secure a faithful performance of these duties.

It is plain that the General Assembly of the State of Missouri, in conferring these duties upon the Auditor, did so in the belief and intention that they would be of greater value and importance than the report of the Survey staff would seem to indicate; in fine, it appears to have been the deliberate intention to make the Auditor a major executive and impose upon him the duties and responsibilities of a major executive, which duties and responsibilities the Auditor has accepted and assumed.

The error which the Survey staff has committed is in not having informed itself thoroughly as to these duties and in assigning other duties which, though eminently suited to fit into the staff's preconceived notion, nevertheless do not express facts.

An examination of this section makes it clear, in the first place, that the Auditor was to be both Accountant and General Bookkeeper. While the words may be used interchangeably by some, the fact that both are used shows that a distinction was intended.

The Survey staff does not differentiate between the functions of Auditing, Accounting and Bookkeeping. To illustrate the differentiation of each function, the definition of each is given herewith.

Auditing deals with the examination, criticism and passing on the accuracy of accounts.

Accounting is that branch of practical science which has to do with the devising, installation, supervision and control of systems or methods of collecting, classifying, recording and summarizing financial data relating to the business of individuals, institutions and governments, so that the condition or state of such business at any time shall be disclosed; the result or outcome of its transactions shall be expressed in terms of its objects or purposes, and other information needed for its systematic and most successful administration shall be furnished.

Bookkeeping deals chiefly with the making of the records so arranged and classified.

It will be readily seen from the foregoing definitions that the function of Bookkeeping is really an elementary or minor one. To classify a finely developed and efficient auditing and accounting system, as conducted in the Auditing Department, as Bookkeeping, is certainly misleading and an injustice to the department.

The Auditor, in compiling the financial statistics for conducting the business of the Board of Education, has adopted methods of accounting in conformity with provision of creating act, that will render greater assistance to the executive officers and furnish members of the Board and the general public the data necessary to enable them to form an intelligent opinion relative to the economy and efficiency of the several business, educational and other activities of the school system.

It is generally accepted among school accounting officers that the purposes of a standard accounting system are:

Original records for all financial transactions within the school system;

The accurate accounting for all school and income-producing property;

The accurate accounting for all funds appropriated for school purposes;

The accurate determination of costs for all forms of education, for each kind of school, for each class of expense, and object of expense;

True comparisons of costs within the school system for the same period and with previous similar periods;

The detection of efficiency and inefficiency of service rendered;

When a sufficient number of cities make use of the system, the determination of standard unit costs of education.

By a more thorough examination of the records in the Auditing Department the Survey staff would have ascertained that this system in its entirety has been efficiently installed.

The annual report of the Auditor exhibits the statistics, arranged and classified so as to show in detail all fund assets and liabilities; receipts, classified as revenue and non-revenue, and sources from which obtained; and cost of conducting the business of the Board of Education, classified and analyzed under descriptive captions.

The costs are computed on the per pupil per hour basis and presented so as to show comparable costs for current year with those of previous year, (1) as a whole, and (2) of activities by kind and object. The cost for conducting one activity is compared with that of conducting another in the system. The statistics are reported in tables under the following captions: (Auditor's Report, 1915-1916.)

(a) Disbursements by all departments.

(b) Diagram exhibiting a summary of receipts and payments for all purposes, classified by activity and object, with comparable per pupil and per pupil per hour cost therein.

(c) Chart exhibiting percentage comparison of payments.
(d) Payments segregated in three general groups, with the per cent of each to total payments.
(e) Payments for expenses of schools, classified by school and object together with the per pupil and per pupil per hour costs therein, (1) based on salaries alone, and (2) based on salaries and all other expenses therein.
(f) Payments for school expenses in detail for the several classes of schools, with the per pupil and per pupil per hour costs therein.
(g) Payments for expenses of other activities.
(h) Payments for all other expenses not allocated.
(i) Payments for expenses of Administration Building.
(j) Payments for school outlays, sites, buildings, permanent improvements and equipment.
(k) Financial administration of the school lunch rooms.
(l) Business and financial statements of the Various Funds.

Not only was it intended that the Auditor, as accountant, should arrange and classify records and accounts, but it is expressly given to him to make and keep those records, by making him General Bookkeeper, thus giving him full control of the accounting system of the Board. The prolix statement of duties made by the Survey staff, i. e., (1) the general bookkeeping of the system; (2) the distribution of charges and the computation of unit costs; and (3) the inventorying and checking up of instructional, operating and maintenance materials, are in reality but differentiations of the same duty, viz., bookkeeping.

Another and important duty conferred upon the Auditor, entirely overlooked by the Survey, is that of auditing and

examining all dues and demands made on the Board, and to draw warrants in payment of same. He is expressly forbidden to audit any demand not authorized by law or the rules of the Board, or that is not in a proper and fully itemized form, or unless the amount required for the payment of same shall have theretofore been appropriated by the Board.

This results in the entire business of the Board, all payments for every purpose, passing through his hands for examination and approval, and when it is noted that the Board's expenditures for 1915-16 amounted to $4,379,246.06, his responsibility may well be calculated. As a matter of fact, this results in a great saving to the Board in the detection and prevention of errors of all kinds—intentional or otherwise. His work amounts to a perpetual audit of the business of the Board, and was undoubtedly intended to be so by those who fixed upon him these powers and made him independent, answerable to the Board alone, and beyond the control of any other executive of the Board.

In the exercise of the duties conferred upon him by the legislature, the present Auditor has endeavored to gather, classify, arrange and exhibit statistics of the school system so as to be of increasing use and benefit to the members of the Board, the executives encharged with the Instructional, Financial, Building and Service functions of the Board, and to the public in general.

He has not been charged with, nor has he assumed the duty of interpreting these statistics, but he has endeavored to classify them, and to make more apparent by diagrams and graphs, facts borne out by statistics which he has compiled.

Beginning with 1910-11, accounts were more definitely classified and hourly and yearly costs per pupil in various activities were figured, and in 1914-15 the unit of computation changed to "average daily attendance." While the unit of comparison previous to this had been the average member-

ship, no great difficulty will be found in reducing costs to average daily attendance, and the Auditor has so reduced them and they are now on file in his office.

The statement by the Survey staff that "historical and current cost tables are reported in the annual report without adequate explanation of the unit used" will be found untrue by a reference to the Auditor's report including those tables.

The statement that $149,000 expended in 1914-15 has not been "apportioned" to any of the other main captions, will not be substantiated by a reference to the Auditor's report of that year. An item of "General Expenses" of $40,844.50 in the diagrammatical summary is clearly indicated as part of the school expenses; in the following table the items which make up this total—Postage, Printing, Baths, Rentals, etc.—are set forth, and in the detailed statement of expenditures immediately following, these expenditures are shown by individual schools. The items of $108,789.61 displayed under "Other Activities" will be found specifically accounted for as cost of Educational Museum, Bookbindery, Teachers Library, etc.

The criticism that "detailed statement of total expenditures" is "uninterpretable" is also not borne out by an examination of that table and the entire report. An examination will show that this table is the source of the summary tables, diagrams and charts which immediately precede.

The apparent duplication of certain features of the clerical work of the Auditor by other departments, will be found to refer to the records of payments out of the appropriations encharged to that department and the zeal of the executive to make an accounting of his stewardship; and the recommendation of the Survey staff that one administrative officer be made finally responsible for all problems of "cost accounting" is fully concurred in by the present Auditor. In point of fact, the charter and rules of the Board, as we have shown, do now impose these duties upon one administrative officer, who is the Auditor.

As the Board's official accountant he is undoubtedly charged with the "scientific arrangement of record mediums" of the other departments as well as those of his own, and all such records should be kept with his approval and under his supervision. Your Auditor has heretofore called the attention of executives and committees of the Board to the most serious departures (done unwittingly and with the best intentions) from this properly imposed regulation, and has no doubt that a correction will be duly made.

The Survey report makes the bare statement that the expenses for conducting the Auditing Department have more than doubled for the past decade, entirely ignoring the new functions added to the department and great enlargement of the department generally, also the natural growth of the system as a whole. A further investigation and analysis would have revealed the following significant facts: Two of the more important functions added are, (1) complete verification of all pay rolls of the entire school system, which requires a permanent record in the Auditing Department of each employe in the system, numbering approximately 3,200; the said record showing the name of appointee, position held, salary or wage paid, and date of appointment. In the case of teachers not drawing the maximum salary in their rank, the number of days absent in each school month is also recorded. (2) Installation of a system whereby a perpetual inventory is kept of all materials in the Board's warehouse. By means of these records a complete verification is made of all purchases, deliveries, and stock on hand of text books, stationery, supplies, building materials, furniture and the Paint, Carpenter and Woodworking Shops, the Supply Commissioner being required at the end of each day's business to forward to the Auditing Department all requisitions for supplies and materials distributed from the several stocks. These requisitions are examined and verified with the same care that is used in the verification of invoices calling for the payment of cash. The balance, or stock on hand, can be ascertained

at the end of each day's business. The stock on hand, as shown by the perpetual inventory, is verified semi-annually by a physical inventory made by employes of the Auditing Department.

In spite of the added functions and greater efficiency of the department, the expenses for conducting the same for the decade have increased slightly more than the expenses for conducting the entire school system. The relation of the expenses for conducting the Auditing Department during the fiscal year 1906-07, $3,929.76, to the total expenses for the said year, $2,281.394.57, was 17/100ths of 1%; while the relation of the expenses for conducting the department during the year 1914-15, $8,471.14, to the total expenses for the said year, $4,226.421.28, was 20/100ths of 1%, or a proportionate increase for the decade of .17%. The total expenses for the year 1906-07 were $2,281,394.57, while for the year 1914-15 they were $4,226.421.28, or an increase for the period of 85%. The total cash expenditures for the year 1906-07 were $3,312,632, against $4.947,630 in 1914-15, an increase of 48%; the total salaries paid by the Instruction Department, including principals and teachers, amounted to $1,647,730 in 1906-07 and $2,962,930 in 1914-15, an increase of 80%; and the total salaries of mechanics employed by the Board in 1906-07 amountel to $19,825, and in 1914-15 to $94,084, or an increase of 375%—about four times as much. All of the above figures are taken from the Auditor's reports of the respective years, patently indicating the enormous increase of business handled by this department, not to speak of its added efficiency and usefulness. In this connection, refer also to Exhibit "F" and analysis.

Before concluding, a categorical reply to the "Summary of Conclusions" drawn by the Survey staff will be found instructive.

1. In addition to the functions of Accounting and General Bookkeeping, Cost Accounting and Inventorying, the important duty of auditing all expenditures and issuing warrants for all payments has been wholly overlooked.

2. In connection with the suggestion in regard to making detailed comparisons of costs of St. Louis with other cities, your Auditor agrees that such statements may be of value (when proper allowances have been made for the different methods of accounting in each city) to the members of the Board or executives of departments at such times as they may require such statements, but the propriety of publishing such comparisons in the annual report of the Board is doubtful. Such comparisons are not found in the reports of any of the school officers of other cities.

3. Books kept by the Auditor differ essentially from the records in the other departments, the Auditor's books being the official records of the financial business of the Board, of permanent assets and current expenses, and such other subsidiary books as are necessary in carrying out his functions of auditing and accounting; the records kept by the other departments being circumscribed by the appropriations made for the use of that department and the peculiar business of that department.

4. The auditing of inventories of materials and supplies at warehouse and of text books in schools, is a differentiation of the same function. The text books carried at schools are a part of the general stock belonging to the Board, and, as such, require verification as to actual existence, as well as the stocks in the warehouse. The greater part of this work is done by a clerk in the department and not by the Auditor personally.

5. The salaries of clerical positions in business offices are not unusually high. They compare very favorably with salaries paid mechanics and teachers.

6. As to the reporting of facts in the Auditor's annual report, it is difficult to see where a less detailed report would not be a distinct loss. In no other way are the members of the Board, executives, principals, and general public advised as to the costs of each school and department. The Auditor has suggested the advisability of working out costs

of various departments in high schools and comparative costs by cubic contents of repairs to buildings. To gather the information necessary will require the co-operation of other departments or an extension of the authority of the Auditor.

Conclusion.

A fair examination of the foregoing arguments and of the exhibits attached will prove convincing as to the following conclusions:

First: That the expenditures by the St. Louis Public School System for businesss purposes compare very favorably with those of other cities of the same class.

Second: A comparison made of figures published by the Commissioner of Education may be misleading, owing (1) to possible errors in reporting by the different school systems; (2) different opinions as to placements of charges; (3) the fact that in some cases the municipality bears a greater or less part of the business expenses; (4) in some cities part of clerical expense is charged directly to the educational activity and is a part of the educational cost; and (5) a large total in "General Expense" column is not allocated by the Commissioner of Education.

Third: The practical methods worked out by the St. Louis Board of Education and its executives through a long period of development have been discredited (1) by unfavorable selection and grouping of figures; (2) by an arbitrary segregation of alleged business expenditures; and (3) by unfair choice of cities for purposes of comparison.

Respectfully submitted,

R. L. DALY[1]

Wm. M. Susanka,
Acting Auditor

[1] Lt. R. L. Daly, now with the National Army in France.

"Exhibit A."—Analysis of Table XVI

	1909-10	1910-11	1911-12	1912-13	1913-14	1914-15
Educational Purposes:						
Salaries and expenditures, educational administrative staff, offices, etc....	$ 38,209.60	$ 37,232.05	$ 38,880.93	$ 44,433.18	$ 45,116.98	$ 50,933.52
Salaries and expenses, Supervisors, Principals, their clerks and teachers' salaries	2,018,269.70	2,310,773.69	2,425,300.72	2,527,772.62	2,680,585.56	2,852,962.96
School supplies, textbooks	119,633.54	123,090.40	108,655.35	116,038.20	145,598.58	142,462.31
Instruction expenses for Special Schools	Included	above				
Other miscellaneous instructional expenses ...	27,306.17	27,281.01	30,682.92	31,829.07	32,672.18	40,844.50
Total	$2,203,419.01	$2,498,377.15	$2,603,519.92	$2,720,073.07	$2,903,973.30	$3,087,203.29
Survey Table XVI	2,162,984.61	2,446,778.82	2,545,225.92	3,631,366.98	2,763,409.46	2,902,742.76
Per cent Total Administrative ...	*.8017*	*.8084*	*.8067*	*.8139*	*.7426*	*.7687*

"EXHIBIT A"—*Continued.*—ANALYSIS OF TABLE XVI

	1909-10	1910-11	1911-12	1912-13	1913-14	1914-15
Business Purposes:						
Offices in charge of Finance, Accounting, Buildings and Supplies.	$ 107,037.48	$ 85,463.28	$ 93,157.81	$ 106,642.63 *	$ 127,451.41 **	$ 134,731.22 **
All operation of buildings, including salaries and expenses of Janitors and Engineers	225,418.51	262,665.69	267,326.32	274,995.95	286,419.77	300,073.85
Fuel, water, light and power	77,268.13	83,236.18	90,433.16	87,063.38	91,888.55	142,232.19
All maintenance, including labor and materials in repairs and replacements of equipment . . .	135,164.54	160,745.39	173,363.79	152,968.39	499,213.03	351,736.93
Total	$ 544,888.66	$ 592,110.54	$ 624,281.08	$ 621,670.35	$1,004,972.76	$ 928,774.19
Survey Table XVI	551,781.18	643,496.38	686,691.44	642,066.81	1,053,421.70	921,978.06
Per cent Total Administrative . . .	*.8037* of remainder	*.8578*	*.8509*	*.8277*	*.8735*	*.8547*

* Secretary and Treasurer's $5,000 Contingent Fund included.
** Secretary and Treasurer's $10,000 Contingent Fund included.

"Exhibit B."—Comparative Statement of Expenditures
Fiscal Year 1910-1911 to 1915-1916

	Fiscal year 1910-1911	Fiscal year 1911-1912	Fiscal year 1912-1913	Fiscal year 1913-1914	Fiscal year 1914-1915	Fiscal year 1915-1916
Business Administration:						
Board of Educat'n, Printing Proceedings, etc..	$ 8,598.94	$ 8,033.22	$ 6,559.58	$ 7,541.46	$ 6,453.46	$ 6,097.19
Office Secy. and Treas. .	13,426.89	14,578.35	24,288.81	31,744.84	35,081.00	22,438.26
Legal Services	2,525.00	4,500.00	9,602.36	2,878.10	2,686.31	2,732.80
School Census	.00	.00	.00	6,478.32	.00	.00
Office of Auditor	4,981.98	5,892.79	6,457.57	6,859.29	9,120.64	9,167.35
Office in charge of Buildings	44,859.98	48,018.25	49,336.46	53,841.27	52,605.41	44,701.21
Office in charge of Supplies	22,194.43	24,668.42	26,559.79	35,006.01	37,924.17	36,731.65
All Other Expenses of Administration	4,828.88	6,067.92	3,649.59	3,488.58	3,797.12	3,475.31
Total	$ 101,416.10	$ 111,758.95	$ 126,447.46	$ 147,837.87	$ 147,668.11	$ 125,343.77
Per cent of Total.....	*.0231*	*.0262*	*.0296*	*.0307*	*.0298*	*.0285*
Administration Building .	21,334.24	39,826.06	19,114.46	43,138.39	27,448.66	21,988.38
Per cent of Total.....	*.0048*	*.0094*	*.0045*	*.0089*	*.0055*	*.0050*
Educational Administration:						
Office of Superintendent	$ 37,232.05	$ 38,880.93	$ 44,433.18	$ 45,116.98	$ 50,933.52	$ 47,106.31
Attendance Department	15,817.94	17,719.41	18,502.07	18,077.85	22,716.95	23,924.84
Department of Hygiene	15,030.38	16,361.16	17,014.50	17,517.49	33,890.67	36,586.20
Psycho-Educational Clinic	.00	.00	.00	.00	4,661.02	3,984.20
Total	$ 68,080.37	$ 72,961.50	$ 79,949.75	$ 80,712.32	$ 112,202.16	$ 111,601.55
Per cent of Total.....	*.0155*	*.0171*	*.0187*	*.0168*	*.0227*	*.0254*

EXHIBIT B''—*Continued.*—COMPARATIVE STATEMENT OF EXPENDITURES
Fiscal Year 1910-1911 to 1915-1916

	Fiscal year 1910-1911	Fiscal year 1911-1912	Fiscal year 1912-1913	Fiscal year 1913-1914	Fiscal year 1914-1915	Fiscal year 1915-1916
Other Activities:						
Educational Museum ..	$ 9,486.43	$ 10,294.64	$ 15,185.84	$ 16,358.35	$ 13,399.71	$ 12,962.13
Book Bindery	3,599.93	3,816.61	3,613.58	3,590.12	4,014.27	1,985.68
Maintenance Board's Property	8,142.51	8,765.41	3,426.22	3,187.93	2,702.91	4,238.02
Janitors waiting Assignment	5,464.45	5,132.05	1,964.35	2,679.10	2,381.15	2,594.74
Greenhouses	1,317.70	1,551.87	1,750.94	1,727.45	2,134.90	2,252.33
Nursery	786.01	554.55	456.74	483.85	629.29	533.65
Shops	4,969.42	4,755.04	4,151.54	8,345.88	16,578.48	16,123.78
Teachers' Library	.00	.00	.00	.00	1,951.62	1,985.68
All Other Payments....	40,495.05	49,371.82	40,897.83	40,255.39	64,997.28	44,300.41
Total	$ 74,261.50	$ 84,241.99	$ 71,447.04	$ 76,628.07	$ 108,789.61	$ 86,976.42
Per cent of Total.....	*.0169*	*.0198*	*.0167*	*.0159*	*.0220*	*.0198*
Expenses of Instruction:						
Salaries and Expenses Supervisors	$ 54,419.74	$ 58,944.22	$ 61,679.52	$ 66,244.46	$ 69,180.86	$ 69,540.23
Salaries Principals and Clerks	251,510.15	257,462.60	264,358.50	273,701.50	283,318.80	288,869.35
Salaries Teachers	2,004,843.80	2,108,893.90	2,201,734.60	2,340,639.60	2,500,463.30	2,530,511.10
Text Books	40,671.54	29,896.24	28,613.66	38,898.22	37,286.76	35,896.12
Stationery and All Other Supplies	82,418.86	78,759.11	87,424.54	106,700.36	105,175.55	90,042.82
Total	$2,433,864.09	$2,533,956.07	$2,643,810.82	$2,826,184.14	$2,995,425.27	$3,014,859.62
Per cent of Total....	*.5535*	*.5964*	*.6190*	*.5869*	*.6054*	*.6860*
General School Expenses.	27,281.01	30,682.92	31,829.07	32,672.18	40,844.50	42,977.62
Per cent of Total.....	*.0062*	*.0072*	*.0075*	*.0068*	*.0083*	*.0098*

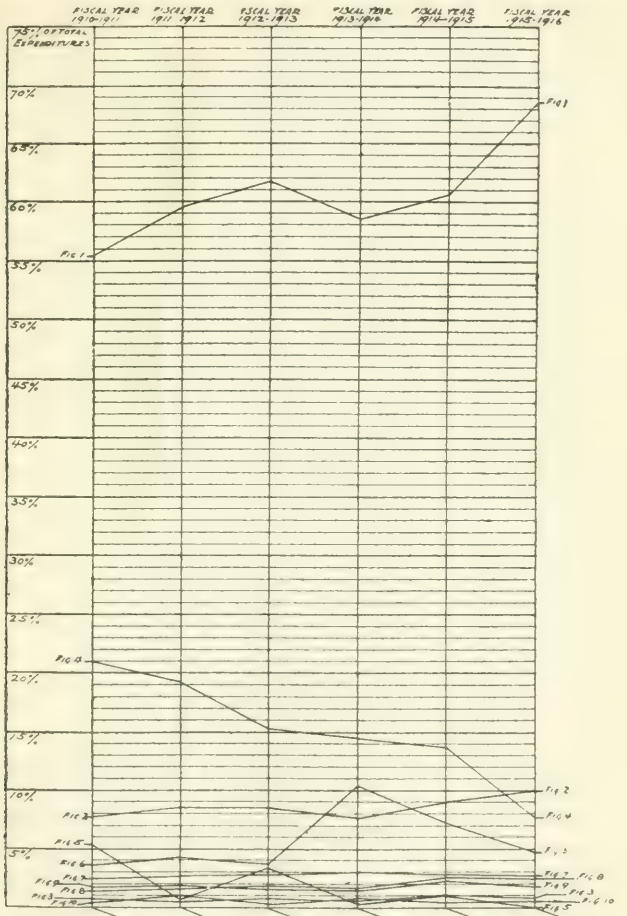
EXHIBIT B''—*Continued.*—COMPARATIVE STATEMENT OF EXPENDITURES
Fiscal Year 1910-1911 to 1915-1916

	Fiscal year 1910-1911	Fiscal year 1911-1912	Fiscal year 1912-1913	Fiscal year 1913-1914	Fiscal year 1914-1915	Fiscal year 1915-1916
Operation of School Plant						
Wages Janitors and Scrubwomen	$ 241,455.90	$ 244,461.20	$ 253,775.70	$ 263,947.95	$ 276,846.15	$ 291,644.95
Fuel (less power distributed at high schools)	54,524.07	54,289.46	50,621.85	44,578.94	60,238.42	66,347.13
Janitors' supplies, Water, Light, Power, etc.	49,921.90	59,008.82	57,661.78	69,781.43	105,221.47	78,001.94
Total	$ 345,901.87	$ 357,759.48	$ 362,059.33	$ 378,308.32	$ 442,306.04	$ 435,994.02
Per cent of Total	*.0787*	*.0841*	*.0848*	*.0785*	*.0894*	*.0992*
Physical Maintenance:						
Furniture, Equip., etc.	$ 17,902.78	$ 11,018.55	$ 15,158.11	$ 26,396.69	$ 27,806.85	$ 30,608.20
Expense Portables	5,751.23	3,240.12	5,041.13	6,735.23	9,703.54	9,096.75
Care of Grounds	5,615.12	6,757.60	6,154.04	6,495.51	7,996.58	7,969.62
Repairs to Buildings, Equipment, etc.	131,476.26	152,347.52	126,615.11	459,585.60	306,229.96	164,260.97
Total	$ 160,745.39	$ 173,363.79	$ 152,968.39	$ 499,213.03	$ 351,736.93	$ 211,935.54
Per cent of Total	*.0366*	*.0407*	*.0358*	*.1036*	*.0711*	*.0483*
Outlays for School Sites	238,091.31	36,007.20	132,811.85	27,625.00	40,975.00	3,850.00
Per cent of Total	*.0540*	*.0085*	*.0311*	*.0057*	*.0083*	*.0009*
Outlays:						
New Buildings, Permanent Improv'ts, etc.	$ 869,957.91	$ 759,238.06	$ 603,316.94	$ 600,073.51	$ 566,025.92	$ 224,066.45
Portable Buildings	.00	8,397.25	3,853.73	71,174.81	30,544.28	55.70
Addition to Greenhouse	.00	.00	.00	1,262.00	.00	.00
Automobiles	1,529.50	80.50	.00	10,575.00	3,212.80	3,698.00
New Equipment—Educational and Fixed	55,000.82	47,630.31	43,339.47	24,382.22	80,566.66	111,995.23
Total	$ 926,488.23	$ 815,346.12	$ 650,510.14	$ 707,467.54	$ 680,349.66	$ 339,815.38
Per cent of Total	*.2107*	*.1916*	*.1523*	*.1462*	*.1375*	*.0771*
Grand Total	$4,397,464.11	$4,255,904.08	$4,270,948.31	$4,819,786.86	$4,947,745.94	$4,395,342.30

"EXHIBIT C"

Chart Showing Percentage Comparison of Expenditures for the Various Activities

Fiscal Years 1910-1911 to 1915-1916



SCHOOL EXPENSES												
FIG 1 EXPENSES OF INSTRUCTION	55.35%		59.54%		61.90%		58.69%		60.54%		68.60%	
2 CREATION OF SCHOOL PLANT	7.87		8.41		8.48		7.85		8.94		9.92	
· 3 SUNDRY SCHOOL EXPENSES	.62	6.384	.72	6.867	.75	7.113	.68	6.727	.83	7.031	.98	7.950
· 4 NEW BLDG FIXED EQUIPMENT	2.107		1.914		1.523		1.462		1.375		1.771	
· 5 SCHOOL SITES	.540	2.647	.185	2.001	.311	1.834	.157	1.619	.183	1.558	.094	1.865
· 6 PHYSICAL MAINTENANCE	.366	3.66	.407	4.07	.358	3.58	.1036	1.036	.711	7.11	.483	4.83
GENERAL ADMINISTRATION												
FIG 7 BUSINESS ADMINISTRATION	2.31		2.62		2.96		3.07		2.98		2.85	
· 8 EDUCATIONAL ADMINISTRATION	.155	3.86	.171	4.33	.187	4.83	.168	4.75	.227	5.28	.254	5.34
OTHER ACTIVITIES												
FIG 9 OTHER ACTIVITIES	1.69		1.98		1.67		1.59		2.20		1.98	
· 10 ADMINISTRATION BUILDING	.048	2.71	.094	2.97	.045	2.12	.089	2.48	.055	2.75	.050	2.48
		100.00		100.00		100.00		100.00		100.00		100.00

"Exhibit D."—Analysis of Table XVIII

Data from Annual Report of Bureau of Education (Fiscal Year 1914-1915), 1916, Vol. II, Tables 13 and 16

Part "A"

City	Popu-tion 1910	Total Expenses		Average Daily Attend-ance	Rank	Average Per Pupil Educatl. Prps.	Rank	Average Per Pupil Business Prps.	Rank
		Educa-tional	Busi-ness						
New York	4,766,883	$33,788,206	$5,379,670	699,291	1	$48.32	1	$ 7.69	6
Chicago	2,185,283	10,681,574	2,576,004	291,255	2	36.68	6	8.84	5
Philadelphia . . .	1,549,008	6,194,435	1,298,074	181,769	3	34.08	8	7.14	8
St. Louis	687,029	3,148,472	1,023,211	79,205	5	39.71	4	12.92	2
Boston	686,092	4,587,085	1,215,746	99,829	4	45.95	2	12.18	3
Cleveland	566,476	3,028,537	938,658	78,937	6	38.37	5	11.89	4
Baltimore	558,485	1,782,603	282,110	62,794	9	28.39	9	4.49	9
Pittsburgh	533,905	2,820,374	961,703	64,939	8	43.63	3	14.88	1
Detroit	465,766	2,376,193	527,398	68,810	7	34.53	7	7.67	7

"Exhibit D"—*Continued.*—Analysis of Table XVIII

Part "B"

City	Total Expdtrs. Bus. Purps.	Board of Educatin. & Bus. Offcrs.	Cost	Rank	Operatn. of School Plant	Cost	Rank	Maintenance and Repairs	Cost	Rank	Other Expense Not Allocated	Cost	Rank
New York . .	$5,379,670	$473,321	$0.68	7	$2,404,910	$3.44	9	$1,313,074	$1.88	5	$1,188,365	$1.69	1
Chicago	2,576,004	320,065	1.10	6	1,673,035	5.74	5	425,686	1.47	7	157,218	.53	5
Philadelphia	1,298,074	233,428	1.28	5	737,625	4.06	7	240,993	1.32	8	86,028	.48	6
St. Louis . . .	1,023,211	175,117* (116,725)	2.21 (1.47)	2 (4)	457,649	5.79	4	351,737	4.45	1	38,708	.47	7
Boston	1,215,746	195,704	1.96	3	600,819	6.02	2	292,656	2.94	4	126,517	1.26	2
Cleveland . .	938,658	129,553	1.64	4	459,872	5.82	3	267,557	3.39	3	81,676	1.04	3
Baltimore . .	282,110	19,392	.31	9	231,683	3.69	8	22,579	.35	9	8,456	.14	8
Pittsburgh .	961,703	150,098	2.32	1	492,752	7.62	1	271,780	4.21	2	47,073	.73	4
Detroit	527,398	44,893	.65	8	376,271	5.47	6	105,109	1.53	6	1,125	.02	9

* This figure erroneously reported, and includes following items which should be deducted:

Expense of Board of Education Building (an investment)	$27,448.66	
Secretary's Contingent Fund (not an expenditure)	11,000.00	
Expense of Warehouse (chargeable to Operation of School Plant)	14,219.38	
Expense of Operating Trucks (chargeable to Operation of School Plant)	5,723.72	58,391.76

See Auditor's Report, 1914-15.

"EXHIBIT D"—*Continued.*—ANALYSIS OF TABLE XVIII

Part "C"

COMPARISON OF COSTS BASED ON POPULATION OF CITIES

City	Total Business Purposes	Rank	Board of Edcatn. & Business Officers	Rank	Operation of School Plant	Rank	Maintenance and Repairs	Rank	Expenses Not Allocated	Rank
New York	$1.13	7	$0.0993	7	$0.5043	7	$0.2755	5	$0.2493	1
Chicago	1.18	5	.1465	6	.7656	5	.1948	7	.0719	5
Philadelphia	.84	8	.1507	5	.4762	8	.1556	8	.0556	7
St. Louis	1.49	4	.2550 (.1699)	3 (4)	.6661	6	.5119	1	.0564	6
Boston	1.77	2	.2852	1	.8728	2	.4266	4	.1844	2
Cleveland	1.66	3	.2287	4	.8118	3	.4723	3	.1442	3
Baltimore	.50	9	.0347	9	.4145	9	.0404	9	.0151	8
Pittsburgh	1.80	1	.2811	2	.9229	1	.5090	2	.0882	4
Detroit	1.13	6	.0964	8	.8078	4	.2256	6	.0024	9

RANK OF CITIES AS TO PROPORTION OF EXPENSES FOR EDUCATIONAL PURPOSES

City	Survey Table	Analysis
New York	1	1
Chicago	5	6
Philadelphia	3	8
St. Louis	8	4
Boston	6	2
Cleveland	7	5
Baltimore	2	9
Pittsburgh	9	3
Detroit	4	7

"Exhibit E."—Analysis of Table XIX

Fiscal Year 1911-12. Data from Financial Statistics of Cities, 1912

City	Total Expenses	Rank	Average Attend-ance	Rank	General Adminis-tration	Business Adminis-tration	Per cent to Total Expenses	Rank	Educatl. Adminis-tration	Cost per Pupil Avg. Attend'ce	Rank
New York	$36,427,562	1	682,881	1	$974,388	$494,809	.136	7	$479,579	$0.7023	6
Chicago	10,679,559	2	263,064	2	375,618	219,442	.206	6	156,176	.5937	9
Philadelphia . . .	6,529,436	3	171,399	3	421,619	173,580	.266	5	248,039	1.4471	3
St. Louis	3,350,757	6	80,168	6	201,810	127,443	.380	3	74,367	.9278	5
Boston	5,263,326	4	102,920	4	392,745	174,433	.331	4	218,312	2.1212	1
Cleveland	3,003,866	7	83,725	5	261,951	147,996	.493	2	113,955	1.3612	4
Baltimore	1,978,084	9	58,917	8	56,227	16,101*	.081	*	40,126	.6811	8
Pittsburgh . . .	3,570,583	5	63,779	7	320,998	215,662	.604	1	105,336	1.6516	2
Detroit	2,130,586	8	50,260	9	87,984	53,376*	.251	*	34,608	.6886	7

* No Finance Offices and Accounts for Baltimore and Detroit.

Comparative Cost of Educational Administration, Boston and St. Louis, Fiscal Year 1915-16

Data from Annual Report of these cities

	Boston	St. Louis
Superintendent	$78,208.31	$47,106.31
Attendance Department	43,062.84	23,924.84
Hygiene Department	40,296.31	36,586.20
Psycho-Educational Clinic	.....	3,984.20
Total	$161,567.45	$111,601.55
Attendance all Pupils	115,401	89,038
Cost per Pupil	1.40	1.25
Attendance Day High and Elementary	100,812	79,142
Cost per Pupil	1.60	1.40

"EXHIBIT F."—STATEMENT EXHIBITING THE COMPARATIVE COST OF CONDUCTING THE AUDITING DEPARTMENT OF ST. LOUIS, WITH THE PER CENT THE SAME BEARS TO THE TOTAL EXPENSES; ALSO THE PER CAPITA AND THE PER PUPIL COSTS FOR CONDUCTING THE SAID DEPARTMENT, WITH THE CITIES HAVING A POPULATION OF 500,000 AND OVER

Financial Statistics of Cities, Bureau of Census, 1912

Cities	Population	Average Daily Attendance	Total Expenses All Purposes	Expense of Auditing and Accounting Depts.	Per cent of Accounting Expenses to Total Expenses	Rank	Per Capita Cost	Rank	Per Pupil Cost	Rank
1. New York ..	5,064,237	682,881	$36,427,562	$77,530	00.212	5	$0.0153	5	$0.1135	5
2. Chicago . ..	2,294,711	263,064	10,679,554	13,370	00.125	7	.0058	7	.0508	7
3. Philadelphia	1,606,102	171,399	6,529,436	30,730	00.470	3	.0198	4	.1794	3
4. St. Louis . ..	**712,027**	**80,168**	**3,350,757**	**5,674**	**00.169**	**6**	**.0079**	**6**	**.0707**	**6**
5. Boston	711,128	102,920	5,263,326	26,774	00.508	2	.0376	1	.2601	2
6. Cleveland . .	596,970	83,725	3,003,866	13,328	00.443	4	.0223	3	.1591	4
7. Baltimore . .	569,560	58,917	1,978,084	.....	.....	..	.....	..	.....	..
8. Pittsburgh .	550,667	63,779	3,570,583	19,721	00.552	1	.0358	2	.3092	1
9. Detroit	503,445	50,260	2,130,586	.....	.....	..	.....	..	.....	..
Totals.....	12,608,847	1,557,113	$72,933,754	$187,127						

"Exhibit F."—(Analysis)

Average cost of Accounting Department, cities of the first class, having a population of 500,000 and over	$26,732
Cost of Accounting Department in the City of St. Louis	$ 5,674
Average per cent cost of Accounting Department to Total Expenses	00.271%
Per cent cost of Accounting Department, St. Louis, to Total Expenses	00.169%
Average Per Capita Costs of operating Accounting Department	$ .0162
Per Capita Cost of operating Accounting Department, St. Louis	$ .0079
Average Per Pupil Cost of operating Accounting Department	$ .1292
Per Pupil Cost of operating Accounting Department, St. Louis	$ .0707

It will be noted from the above Comparative Statement and Summary that the Accounting Department of the Board of Education of this City ranks next to the lowest of the cities of its class in the per cent of costs of Accounting Department to Total Expenses, and in the same position in the Per Capita and Per Pupil costs.

It will also be seen that, while the cost of the operation of the Accounting Department of the City of Saint Louis ranks next to the lowest in the cities of its class in each of the comparisons made, it is, nevertheless, considerably below the average in each instance; the decreases being as follows:

Cost of operating Department, $21,058 less than the average, or	78%
Per cent of operating Department to total expenses..... 00.102% less than the average, or	37%
Per Capita Cost, $.0083 less than the average or	51%
Per Pupil Cost, $.0585 less than the average, or	45%

The above computations show very plainly that the costs for the operation of the Accounting Department in the City of St. Louis compares not only favorably with similar costs for the other cities of its class, but is far below the average in each of the computations.

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